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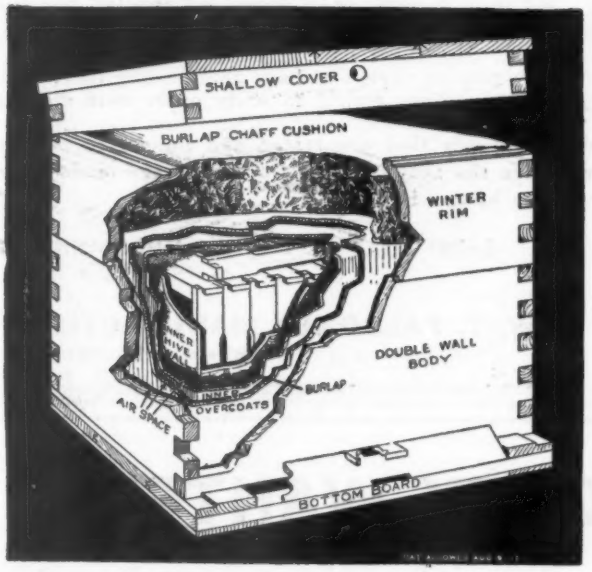

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AMERICAN BEE JOURNAL

VOL. LVIII—NO. 11 HAMILTON, ILL., NOVEMBER, 1918 MONTHLY, $1.00 A YEAR

ADVANTAGES OF LARGE HIVES

A Discussion of the Principles of Commercial Honey Production

BY C. P. DADANT

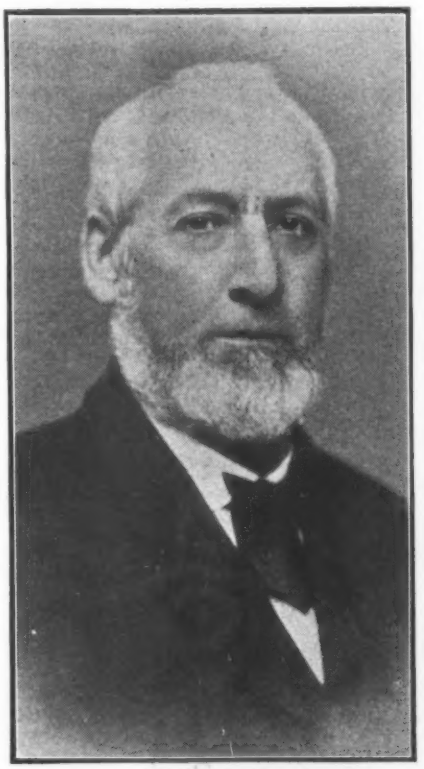
THE discussion of this question is called for, following an editorial in Gleanings in Bee Culture for September, 1918, entitled "Bigger Hives and Colonies." The same number of Gleanings bears upon its cover the picture of two Langstroth-Jumbo hives tiered to 6 and 8 stories and kept from tipping over by fence rails, with the legend, "Rails to the Rescue." Readers of the American Bee Journal, knowing that its editors have, for years, been favorable to large brood chambers, asked for articles upon this subject.

Charles Dadant became a supporter of large hives, and a user of them on an extensive scale, as early as 1868. He had, however, noticed the advantage of large brood chambers long before using them. He often related the first intimation he had of the advantage of a large hive body. This was when he purchased bees from a box-hive beekeeper. The man had one hive which had a capacity of about 2 bushels. This was his oldest colony. He refused to sell it. He had owned it for over 30 years, and although no particular care had been taken of it, the same colony had lived for that entire time. Other hives of less capacity had died in winter or had become weakened in bad seasons until they were robbed, or lost by moths, but this had come through numerous trials and bad seasons without mishap.

A similar experience was later given, in the American Bee Journal of April 18, 1883, by Wm. Ashcom, of Ligonier, Pa. He said: "On June 14, 1881, I drove a swarm, for a neighbor, out of a box hive that was 60 years old; it had been put in the box when it was new; and when I drove the swarm, it was so rotten I could hardly handle it; there were cracks and holes from top to bottom; it stood the hard winter of 1880-81, without any protection, and the bees were very strong in numbers when I drove the swarm. That beehive would hold about 2 bushels."

These might be considered accidental instances, were it not that the theory of beekeeping confirms them.

When considering the subject of frames and hives, Chas. Dadant had three teachers before him, Debeauvoys as his former teacher in France, and Langstroth and Quinby in the United States. Debeauvoys had used a square frame, about 12x12 inches, and Chas. Dadant followed his methods in this country. This was in 1864. A very short time after, having learned the English language—with which he was totally unacquainted—through the use of newspapers and a pocket dictionary, he read the "Mysteries of Beekeeping" of Quinby, and a little later "The Hive and Honey Bee," of Langstroth.



Moses Quinby, original champion of the large frame

Quinby's hive pleased him best. It was away ahead of the Debeauvoys invention. Besides, Quinby had just been reported, in the "American Agriculturist," as having harvested a crop of 22,000 pounds of fine honey—a rare occurrence at that time—for which he had obtained some 30 cents per pound. This was enough to induce a beginner to follow him.

Quinby, in the book above mentioned, discusses the size of hives and criticizes Bevan, an English author of an earlier date, for recommending a hive of only 1,200 cubic inches. After two pages of considerations, he concludes that the best size for box hives is a capacity of not less than 2,000 cubic inches. Beekeeping was not far enough along, then, for him to recommend the casting aside, entirely, of the box hive.

But when he made his movable-frame hive, Quinby gave it a much larger capacity, 2,925 cubic inches. However, some of this space was taken up by the movable feature of the frames, the bee space all around. But his 8 movable frames, 11¼x18½ inches, outside measure, gave a comb surface of approximately 1,584 square inches, or, for both sides of the comb, 3,168 square inches of cell surface.

The original Langstroth hive, 10-frame, on the other hand, being shallower and shorter, supplied only about 2,800 square inches of comb surface. Nowhere in his book, how-

ever, did Langstroth recommend a smaller hive than 10 frames. His experience indicated that ample room was needed. He wrote: "Many hives cannot hold one-quarter of the bees, comb and honey, which, in a good season, may be found in my large hives; while their owners wonder that they obtain so little profit from their bees. **A good swarm of bees, put, in a good season, into a diminutive hive, may be compared to a powerful team of horses harnessed to a baby wagon or a noble fall of water wasted in turning a petty water-wheel."**

These words ought to be inscribed in capital letters on the wall of every bee house, accompanied by this other maxim, which Langstroth called "Oettl's Golden Rule: **Keep your colonies strong.** If you cannot succeed in doing this, the more money you invest in bees, the heavier will be your losses; while, if your colonies are strong you will show that you are a **bee-master,** as well as a beekeeper, and may safely calculate on generous returns from your industrious subjects."

But neither Quinby nor Langstroth gave any hint, in their writings, that they had calculated the space needed by a colony containing a prolific queen. They suggested that much depends on the locality and the season. This is true. But there are first principles to consider, if we wish to get large returns, no matter what locality we live in. The prolificness of the queen is the main criterion, for the measure of hive size.

When a farmer builds a barn he is a poor manager if he does not consider first the number of animals, farm implements and farm produce, that he wishes to shelter in it. Why, then, should the beekeeper neglect to make the same calculation on the necessary capacity of the brood-chamber of his hives?

The requisites of success in beekeeping are all in a strong force of bees **at the time of the honey crop.** As bees live only about 35 to 40 days, on the average, during the summer, the strong force of the colony must be secured quickly and be ready at the height of the harvest. Should the harvest last several months, it would be necessary to continue with a great force of bees until it ends. For that purpose, the necessary room for breeding must be unobstructed by stores. So there must be sufficient capacity for the breeding of the best queens and ample room for surplus. This is one of the reasons why the production of extracted honey is so much greater than that of comb honey.

There are, of course, differences between different breeds of bees as to activity, strength and other qualities of the worker bees. But given the colonies of same breed, the most successful will be the ones with the best queens, if they have room in plenty and a sufficiency of food. It has been said very truly that a queen which is allowed to lay eggs at her utmost capacity for months will wear out or become unfertile in shorter time than a queen whose prolificness has not been put to the test. But a prolific queen, well fed by her bees, as should be the case, will often lose eggs, if they develop faster than she can find cells for them. Queens have been known to lose hundreds of eggs when deprived of cell room for a short time. Loss of eggs, when preparing for the crop, is loss of honey.

If our queens wear out faster because of their ability to lay is put to full extension, we need only to replace them oftener. Queens are known to live from 3 to 4 years, occasionally 5. If they are given free space and encouragement to lay, it may be necessary to replace them every two years. Some of our leaders in beekeeping are already recommending this, and a few even advise the annual replacing of the queens. So we might as well use their full powers, and secure the profuse laying at the proper time, so as to have the densest population, in the hive, for the crop.

If two colonies, side by side, with the same opportunities, have queens of so unequal fertility that one will produce only half as much progeny as the other, we must not accept for granted the conclusion that the latter will gather only twice as much honey as the former. All tests and experiments have indicated a much greater difference in results, for the number of bees required at home will be about as great in the one case as in the other and the force of field bees of the stronger colony will be in excess of double that of the other. So success lies, entirely, in the utmost prolificness of the queen at the proper time.

Although Langstroth, like Berlepsch and others, had seen a queen lay eggs at the rate of 6 per minute, he hesitated to give the maximum ability of a queen, suggesting between 2,000 and 3,000 eggs per day. Quinby was a little bolder and placed it at "frequently over 3,000." But is it to be wondered that they should have been timid in making bolder assertions, when such men as Reaumur and others placed the active egg-laying at about 200 eggs? In a similar way, Langstroth hesitated in denying entirely the popular fallacy of the ability of the moths to destroy healthy colonies of bees, though in some parts of his work he gave us proofs that he knew they could not injure strong colonies, since he inaugurated the luminous comparison of the impossibility of a healthy colony of bees being killed by moths versus a similar danger for a healthy cow from carrion flies.

A prolific queen—and we should tolerate no others—often averages over 3,500 eggs per day in the active season. Some experimenters put it at an even higher figure.

By comparative experiments, first with 8-frame Quinby hives—Quinby's standard—then 10-frame Langstroth, and Quinby hives up to 16 frames, Chas. Dadant reached the conclusion that 9 or 10 frames, Quinby size, was the best number. But he tried several other styles, in addition to the 12x12 inch frames of the Debeauvoys hive, Americanized, with 14 to 16 frames in a hive. He made experiments on hives with frames 18x18 inches, looking like diminutive barns; also frames shaped as near as possible in the form of a circle, because he had noticed that the bees preferably put their brood in circular shape. It may be interesting to

L. L. Langstroth, whose original frame has become the standard in America

state that these hives proved exceedingly proficient in securing populous colonies. But the difficulty with them was the locating of supers, for which no adequate provision could be made, and they were ultimately discarded. It will therefore be readily understood that his acceptance of 3,500 eggs as the probable average of a prolific queen was not based upon guess, but upon experience. Numerous other apiarists reached similar conclusions, some even placing the possible laying of a queen at 5,000 eggs in 24 hours. Many, however, did not give sufficient weight to the advisability of securing the greatest possible rearing of worker-bees in time for the honey harvest.

The reasoning is that a good hive should accommodate, in its brood-chamber, the breeding of a good queen for 21 days, at least, since it takes 21 days for the developing of the worker from the day the egg is laid to the day of its emerging from the cell. An addition of about 20% of the breeding room is needed for adequate supplies, honey and pollen, for the sustenance of the growing larvæ. This is none too much. Our 8-frame hive beekeepers generally notice that the outer sides of the two outer frames are thus used, besides quite a portion at the upper and rear edges of all the frames. Besides these requirements, some allowance should be made for drone-cells, which are larger than worker cells, 18 to the inch instead of 27, and also for the unavoidable delay caused by the queen not always finding the empty and burnished cells which the workers hasten to prepare for her as soon as empty. Drones are also slower than workers in hatching—24 instead of 21 days. All these matters require consideration.

If we multiply 3,500 by 21 days we find 75,500 as the number of cells actually needed for brood at the height of the breeding season. Adding the 20% for supplies and a reasonable space for the larger cells and the delays above mentioned, we reach a figure of about 90,000 cells. Eight Quinby combs contain approximately 85,500 worker cells, so they are not sufficient. Ten Langstroth combs contain only about 75,600 worker cells, being short about 14,400 of the number required for ample room.

Starting from the above proposition, sustained by experience, Chas. Dadant became the main champion of large hives, in the United States, as he was, in Europe, the leading champion of American ideas on movable frames. But the public did not, by any means, accept his views unanimously. During the year 1885, 9 articles on the subject of "Small versus Large Hives" appeared in the American Bee Journal, mainly from his pen and that of two opponents—Heddon and Hutchinson. Six additional articles appeared in 1889.

To illustrate how much opposition there has been to large brood-chambers, it is sufficient to quote 2 writers. In 1885, page 709, of the American Bee Journal, Franklin P. Stiles wrote that a brood-chamber of from 4 to 7 frames, Langstroth size, was best. This man—if he figured at all—was figuring on a maximum capacity of 1,200 eggs per day for his queens. In 1889, in the May number, B. Taylor, a noted apiarist, asserted that he had a hive of the right size, 1,000 inches of comb surface. This was allowing hardly more than 1,000 cells per day for the capacity of the best queen.

On the other hand, Bertrand, the noted publisher and editor of the "Revue Internationale D'Apiculture," wrote in 1879, that, with small hives, "one quickly has many colonies and quickly very few;" meaning by those words to suggest that small hives swarm much and winter badly.

In 1885, when Langstroth made arrangements with Chas. Dadant for the revision and re-writing of the "Hive and Honey Bee," the question of capacity of hives was fully discussed. Mr. Langstroth said: "If I were to change from the 10-frame hive to any other, I would enlarge it, instead of reducing it." Yet, at that time, the 8-frame hive was very popular. Its popularity has been due partly to its cheapness and its lightness, and partly to the profuse swarming that it causes. Many people want plentiful swarming.

There are, however, successful men who use the 8-frame hive. Wilder, in Georgia, wants no other. He piles them up 2 or 3 high and gets brood or honey, as the case may be, in the different stories. He practices rough-and-ready beekeeping in a country where bees have small value. The Atchleys, years ago, in Southern Texas, wrote that they wanted small colonies for winter, as large colonies consumed too much honey. But large colonies also produce much honey. In the North, a colony is never too strong for winter.

Among the successful 8-frame hive men is our own associate, Dr. Miller. But Dr. Miller gives his prolific queens two hives, or 16 frames, in which to breed. When the honey crop comes, he again reduces them to one 8-frame story for the brood. This requires manipulations which increase the labor at the rush time of the honey crop. Sixteen frames are also beyond the capacity of the best queens. That is another reason for our dislike of such a double hive.

The Jumbo hive, mentioned at the beginning of this dissertation, was the result of a discussion, concerning large hives, in Gleanings in Bee Culture, which was carried on for several years, between 1893 and 1899. The Dadants, of course, held the argument in favor of large hives, with numerous dissenters on the small hive side of the argument. At last, in the May 1st number of 1899, A. N. Draper came to the rescue of the large frame and hive advocates, by giving his comparative experience on hives. Then he quoted the "Hive and Honey Bee" Revision, in which Chas. Dadant wrote: "We would counsel beginners to use a frame as long as the standard Langstroth and as deep as the Quinby." Draper then urged upon the Roots the experiment of making a 10-frame hive of this size. They did so, but instead of calling it, as some of the Europeans do, "the modified Dadant hive," it was called the "Jumbo," on account of its larger size, when compared to the standard Langstroth. The hive is now sold in Europe under the name of "Dadant-Root hive."

The 10-frame Jumbo hive contains over 3,600 inches of comb surface, giving a capacity of over 95,000 worker cells, so that even if a dummy is used in place of one of the frames, it will still have nearly sufficient capacity for the prolific queen. But the principal objection to it comes from beekeepers who use full upper stories and who find these too large for convenience. Indeed, they are very heavy to handle when full of honey. But personally the writer thinks that all full-size upper stories are inconvenient and objectionable, even if only of the shallow 8-frame standard Langstroth size.

After an experience extending over 50 years with several hundred colonies, in both Dadant-Quinby large hives and frames, and 10-frame Langstroth hives of the standard make, the writer is still in favor of a shallower frame for the extracting super. The principal difficulty, with the beekeepers who have used shallow supers, comes from their having used **too shallow** frames, from 4¼ inches deep to 5¾. There is too much handling in these ultra-shallow stories. The original suggestion of Mr. Langstroth for extracting supers was a 6-inch super. We followed this from the first, using a frame with a 6-inch side bar, a super 6⅝ inches deep. Such a frame permits the use of an uncapping knife in the most practical manner, as a single stroke of the knife takes the entire depth of the comb.

Our objections to full-sized upper stories, after trying a hundred or more of them, in Langstroth hives, are as follows:

1. The addition of a full story to a middling colony gives too much space above, in spring, when the weather is still cool, as it doubles the capacity of the hive at one stroke.

2. The addition of this full-story, to a populous colony which is overflowing its brood-chamber, entices the queen away from the lower story, if the lower story is not sufficient for her laying capacity. So, with 10-frame Langstroth hives, we often find powerful colonies with brood scattered over 2 stories. This is inconvenient if we wish to extract. A deep lower story and shallower upper story tend to retain the queen below. At least this is our experience. We never use queen excluders, considering them a hindrance to ventilation. They are rarely needed, with deep, ample brood-chambers.

3. The addition of full stories, of the depth of the Jumbo frame, increases the objections made to full stories of Langstroth depth, for they are still more cumbersome to handle.

4. Honey in full upper stories is much more difficult to handle in using the extractor and there is much more liability for the combs to break down by the heat.

AMERICAN BEE JOURNAL

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FRANK C. PELLETT ..... Associate Editor
C. C. MILLER ..... Questions Department
MAURICE G. DADANT ..... Business Manager

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THE EDITOR'S VIEWPOINT

Our Cover Picture

We are showing a corner of one of the apiaries of Roy Bunger, of Eskridge, Kansas, in our cover picture. Mr. Bunger is a young man who is making commercial honey production an exclusive business. We will have more to say concerning his methods and locality in a future article.

A New Bee Journal

The first number of a new bee journal from far-off Australia has just reached us. It is known as "Victorian Bee Journal," and is published at Melbourne. It is published by the Victorian Apiarists' Association as a means of disseminating information among its members.

It is a well printed little journal of 12 pages whose monthly visits will be awaited with interest. "Education and Organization" is the slogan of the organization. Long may it prosper.

An Interesting Source of Loss of Brood

In our October issue Joseph Scott, of Alabama, described a most unusual condition of loss of brood. In this number T. W. Livingstone, of Georgia gives a similar experience, and credits the trouble to the food given the larvæ. We would like more information concerning this trouble, the extent of the area in which it appears, duration of the attacks and other items which will throw light on the nature of the disorder.

More About Texas

Our Texas series is interrupted from time to time to make room for other matter. There is yet an article about the cotton belt, one about East Texas and one on the inspection system of the State, besides some shorter ones. East Texas is a most interesting section, with wonderful possibilities for commercial honey production. Our readers will be interested in Bankston's method of mating queens with only a few dozen bees in his mating nuclei, and in the fine organization which Prof. Paddock has perfected for fighting bee diseases. Texas is a great State, and offers much of interest for beekeepers. Unfortunately, a part of the photographs taken by the Associate Editor on his trip were spoiled by the photographer to whom they were sent for finishing, so that we are unable to present many interesting things which we would like.

The Punic Bees and Parthenogenesis

The article from Mr. Baldensperger on the above subject in this number of the Journal calls for some comments upon this bee and the claim made for it.

Mr. Baldensperger is a man of great experience with both Punics and Syrian bees. Therefore his opinion and his reminiscences are of great value. We are ourselves very skeptical upon the possibility of the Punic and South African bees having the capacity of laying eggs that will hatch into the female sex without previous impregnation. The fact that some races of insects have this peculiar ability is hardly sufficient to justify this belief without clear proof. We are under the impression that some females of this race may be so small as to pass for neuters and create the occasion for this wrong conclusion. But we want to be fair, and so we insert the following quotation from the June number of the "Western Province Bee Journal," of Cape Town, South Africa, treating of this subject and inserted by the editor, Mr. Attridge, without comments:

"We quote from the Journal of the Royal Microscopical Society, the following results:

"Rupert W. Jack, Rhodesian Entomologist, reports on some interesting experiments made by G. W. Onions on the Cape May honeybee. It exhibits a divergence from the European varieties, in as much as a far greater proportion of the workers are apt to develop the habit of laying eggs, which may produce workers, queens or drones, but do mainly produce workers.

"In the Cape worker-bee, probably belonging to the race *unicolor* Var. *intermissa* Latr., the spermatheca is not vestigial, as in the typical worker-bee, but in a nearly spherical body, 0.54 mm. by 0.45 mm. But the laying workers showed no trace of spermatozoa, and the possibility of insemination must be discarded.

"A hive with a strong nucleus of bees was twice thoroughly inspected by Jack and found to be queenless; there was systematic egg-laying on the part of the workers. In many cases several eggs were laid in a cell. The eggs developed into workers, even when the eggs had been laid in drone cells. Later on drones developed from capped cells. From another queenless hive numerous workers and several queens were reared. The possibility of the eggs having been brought in from outside was excluded. The experiments detailed seemed straightforward and careful, and it looks as if Onions had proved his case: that the eggs of laying-workers of the Cape variety of the honeybee produce mainly workers, and that they develop into queens as readily as the fertilized eggs of queen bees."

This matter will be elucidated sooner or later. Possibilities of error should make us very careful. It looks to us as if, the above being true, the fact would have been accepted long ago by expert beekeepers in South Africa and wherever the Punics are cultivated. In Tunis, where eminent modern apiarists have kept bees and taught beekeeping for years (see American Bee Journal, June, 1914, page 204; also October, 1912, pages 294-300), no one has yet recognized anything of this kind. Mr. Baldensperger is decidedly opposed to this so-called discovery. We might add that Mr. Attridge, the editor of the magazine quoted above, published a book of 96 pages, in 1909, entitled "The South African Beekeeper," and in this book mentions laying-worker bees, but states positively that their eggs produce only drones.

However, since there are many insects in which parthenogenesis is carried even farther than in the claims of Hewitt, Onions and Jack, this peculiarity is possible, though undoubtedly not with any variety of European bees.

Wintering the Bees Successfully

The great majority of our readers live in localities where the question of wintering is a problem. But there are a few essentials which, if they are fulfilled, make the average winter a safe one.

Bees need a sufficiency of good food, not less than 25 pounds. Thirty-five is better. There must be neither fruit juice nor honeydew in the combs. Sugar syrup is much better for them than inferior honey.

The hives should be sheltered from strong winds. If there are flying days, 3 or 4 weeks apart, the bees should be so located that they may take advantage of those flying days. By flying days, we mean days when the thermometer rises to 40 or 50 degrees in the shade.

In localities where there are 2 or 3 months when the bees cannot get a flight, it is usually better to winter in the cellar or in some repository where the aeration will be ample without lowering the temperature of the room below 40 degrees. We have ascertained long ago that bees are quietest at from 40 to 45 degrees. If you are located north of the 42d degree it may be best to winter your bees in such a place. Put them into it at the first severe cold spell and do not remove them till warm days in March or April. The blooming of the first maples is a good indicator.

Be sure and keep a good thermometer in your bee cellar. Watch the temperature at which they are the quietest. Then keep it at that.

Do not attempt to winter weak colonies. It does not pay. Better unite 2 or 3 weak ones into a good colony.

Queen Excluders Unnecessary

How do the Dadants run for extracted honey without using queen-excluders? If I could get along without them, I would have just that much more to spend for hives and supers. F. P., Millbrook, N. Y.

Queen-excluders are needed only when the queen does not have enough room to breed below, or when she seeks for drone-cells and cannot find them below. Our hives are of the same depth as what is called the Jumbo, 2⅛ inches deeper than the Standard Langstroth. With 9 or 10 frames of that size, a queen usually has sufficient room for all her brood. By repeated tests, we have ascertained that if we put extracting supers full of combs on Langstroth hives, in over half of the cases the queens will lay in the super, unless we use excluders. With the deeper frames in the same number, the queen has enough laying space, so that not over 3 or 4 per cent will ascend into the supers, and these are usually in the hope of finding drone-cells in which to lay, and not for want of room.

So we have been in the habit of using altogether worker combs in the supers, as it discourages the queens from going up into them.

If the queens have ample room, the colony is less apt to swarm. The first honey harvested is placed in the first super. After that, other supers are added above the first, as there is then some distance between the brood chamber and the empty cells, and that space is occupied with honey, there is very little danger of the queen subsequently leaving the brood-chamber.

In our own practice, we have considered the queen-excluder as little better than a nuisance, though we are free to say that the wire excluder is much less objectionable than the old perforated zinc. But if we used the regular Langstroth frame, we would probably need excluders, like the majority of beekeepers.

The Great Intelligence of Bees

Are bees capable of reasoning? We already know that when we give flour to bees, in boxes, out-of-doors, in early spring, to be used in lieu of pollen, they bring honey from the hive to dilute this flour and knead it into a soft paste that may be loaded in their pollen baskets. But they might do this without previous reasoning. However, here is a statement from Professor Gaston Bonnier of Paris, the author of "Les Nectaires" and president of the "Societe Centrale D'Apiculture" of France. We translate from L'Apiculteur:

"The railroad line of Paris to Lyon passes by my Vegetable Laboratory of Biology, and the Georges De Layens apiary is very close to the railroad tracks. A few nights ago a freight train suffered a collision and a car, loaded with crystalized sugar in coarse grains, being broken in two, all the sugar was scattered on the ballast.

"The following morning the field workers were not slow in discovering it, and its presence was signalled to the divers colonies. Swarming of bees hastened to the open barrels used for sprinkling and to the little basins in which aquatic plants are grown; from thence to the sugar that was spread upon the railroad track.

"From that time on, there was general traffic, from the hives to the water, from the water to the sugar, and from the sugar back to the hives. What a godsend! especially this year, after the failure of the locust bloom and the shortage of nectar in the sweet clover and other wild honey plants. But it was some work to convert this mass of sugar into syrup and to store it in the hives. However, at the end of four days there was not a trace of sugar left, the entire carload had been stored away.

"We must say that the workers displayed extraordinary activity and got up earlier and went to bed later than usual.

'We must say, also, that quite a portion of the sugar was taken away by bipeds, but the latter often desisted in the fear of stings from their competitors, the bees; for many did not know that in such an occurrence the bees do not sting.

"Finally, the latter secured the greater part of the booty, and this unexpected harvest will enable them to keep up their colonies till the blooming of the heather, which is just commencing in the Forest of Fontainebleau."

Isle of Wight Disease

The British Board of Agriculture and Fisheries has appointed a committee to study the life habits of the honey bee with the object of improving the conditions under which beekeeping is carried on in England and Wales, and to investigate the epidemic diseases of the bee, more especially the disease or group of diseases which pass under the name of "Isle of Wight" disease. The committee consists of: The Master of Christ's College, Cambridge (Dr. A. E. Shipley, F. R. S.); Professor Punnett, F. R. S. professor of genetics, Cambridge); Dr. G. S. Graham Smith, M. D.; Professor G. C. Bourne, F. R. S., D. Sc. (professor of zoology and comparative anatomy, Oxford); Professor W. Somerville (professor of rural economy, Oxford); Mr. T. W. Cowan (chairman of the British Beekeepers' Association); Mr. G. W. Bullamore; Mr. J. C. Bee Mason, and Mr. A. G. L. Rogers (head of the Horticulture Branch, Board of Agriculture and Fisheries). Mr. R. H. Adie will act as secretary. It is proposed to undertake the study of healthy bees at Cambridge and the investigation on Isle of Wight disease at Oxford. The committee would be glad to receive specimens of bees suspected of suffering from "Isle of Wight" disease for examination and experiment.

BEEKEEPING IN THE ARKANSAS VALLEY

Notes on an Auto Trip Among Kansas Beekeepers by a Party of Enthusiastic Beemen

BY FRANK C. PELLETT

GIVEN good roads, a congenial party of beekeepers, a good car and plenty of gasoline, and one could wish for no better vacation. In June, Dr. J. H. Merrill, of the Kansas Agricultural College; Charles D. Mize, President of the Kansas Beekeepers' Association; L. V. Rhine, Deputy Inspector, and the writer made a long drive among the beemen of the Arkansas valley in the vicinity of Wichita, and Hutchinson, Kansas. It was desperately hot, the thermometer registering 110 in the shade, but nobody minded that. The days were spent among the bees, and the evenings in holding miniature conventions in the hotel parlors.

The Arkansas valley is especially interesting from a beekeeping standpoint from the fact that entire failure is unknown in this section. Although southern Kansas is subject to frequent droughts, much of the valley is planted to alfalfa, which is sub-irrigated from the river to a sufficient extent to insure a crop. Alfalfa seems to yield honey most dependably where the roots have plenty of moisture and the atmosphere is dry and hot. As much of the valley as is sub-irrigated thus furnishes the ideal condition. In addition, sweet clover has been widely scattered, horsemint is present in abundance, and heartsease adds a dependable flow. With four such honey plants available, it would be hard to find a more desirable field for profitable honey production.

A branch of the State Beekeepers' Association has been formed here, known as the Arkansas Valley Association. The meetings are well attended, and although the total number of commercial honey producers in the valley is not large, as yet, they make up in enthusiasm what they lack in numbers. At Wichita, O. J. Jones is perhaps the most extensive beekeeper. In a discussion of the possibilities of the pound package of bees, he reported that in 1916 he bought 25 one-pound packages. These were hived on full-drawn combs. In addition to filling the ten-frame hives, he sold $190 worth of honey from them, and left the bees in prime condition for winter.

O. J. Jones releasing bees from the package in which they were shipped

At Hutchinson, J. A. Nininger is probably the most extensive honey producer, making it an exclusive business. The season in southern Kansas is long. Although there is some severe weather in winter, there are frequent warm days which give the bees ample opportunity for flight, so that outside wintering is the rule. Mr. Nininger reports that his bees begin gathering pollen in February from soft maple, and shortly after from elm. Brood rearing is thus started early, and he is sometimes able to get some surplus honey from fruit bloom. There are some very large orchards near Hutchinson. There is such an abundance of bloom on a full-blown apple tree that it is hard to estimate the possibilities of fruit bloom, if it were only possible to get the bees built up in time to harvest it. Mr. Nininger had some fine honey secured from a 400-acre apple orchard. The honey was of fine quality, mild in flavor and of a light amber color.

Dr. A. D. Raffington is also an extensive honey producer, who is so fortunate as to have a good dental practice in addition. The doctor loves his bees, and would greatly enjoy spending all his time among the hives. He has proved so efficient at the dental work that the business grows instead of diminishing, until his friends find him well nigh in de-

Left to right Dr. J. H. Merrill, L. V. Rhine, E. W. Jewell and C. D. Mize, at the Mize apiary

The Jewell apiary at Mt. Hope

spair of getting into the open. Doctor Raffington is one of those genial, whole-souled beekeepers that it is a joy to meet. It is plain that nature intended him to be a beekeeper first.

Raffington reports that his big fall yields are from heartsease, and Nininger has sometimes averaged as high as 50 pounds of comb honey from this source. They usually have about three weeks of flow from horsemint in early summer, with an average of about 35 pounds per colony of surplus. Alfalfa and sweet clover furnish the principal crop. Along the stream there is a variety of such trees as willows, which furnish early pollen and some nectar, as well as fall flowers which add to the total production. False indigo is a common shrub in the river bottom, and yields nectar freely in May.

Mt. Hope is the Mecca of every Kansas beekeeper, for here it is that the popular president of the State Association, C. D. Mize, has his apiary. The site is one of the most attractive for an apiary that the writer has ever seen. A grove shelters it from the wind from the north and west, while furnishing shade from the sun. The hives are set between the big cottonwood trees that grow in a row along the edge of the grove. No photograph can do half justice to the beauty of the apiary. In addition to one long row of hives facing south, there are several short rows facing east. Every hive and fixture is nicely painted, and everything is arranged as neatly as the utensils in the kitchen of a fastidious housewife.

Mr. E. W. Jewell, a local merchant, has an apiary equally neat, although arranged on a different plan. There is a friendly rivalry between the two men, which adds interest to their hobby. Not far from town was a big field of sweet clover which was humming with bees. Our little party greatly admired the luxuriant growth, and envied the two men whose bees were gathering the harvest. At that time the bees were doing nothing over a large area of the middle west, where the entire season has been a failure.

Dr. Bohrer joined the party for a day at Hutchinson. In spite of his more than four score years, Doctor Bohrer is still quite a vigorous young man, and as enthusiastic as ever about bees. It was in the early days of grasshoppers and drought that he came to Kansas and startled the conservative newcomers by planting an orchard. In spite of discouragement, the doctor succeeded in producing both honey and apples in quantity, at the time when it was thought that not much of anything that the settlers had known in their old homes could be grown in Kansas.

With the planting of alfalfa and sweet clover, honey production has become a paying enterprise in this section of Kansas. The rainfall is too uncertain to insure profitable corn crops, but alfalfa has proved the foundation of a profitable general agriculture, which is clearly indicated by the appearance of the homes of the farmers in the valley. More and more of the crop is planted from year to year, so that the stability of beekeeping is constantly improving.

The conditions of northern and eastern Kansas are somewhat different, but these must wait to be told in a future article.

The Ontario Provincial Aparist

By Morley Pettit

IT is with considerable satisfaction that the former provincial apiarist announces the appointment of a most worthy successor in the person of Dr. B. N. Gates, A. B., A. M., Ph. D., late of the State College of Agriculture, Amherst, Mass.

Born on December 19, 1881, in Worcester, Mass., Burton Noble Gates graduated in Arts from Clark College in his home city in 1905. He took his Master's degree from Clark University the following year and at once began lecturing in beekeeping at the State College. In 1907 he became Apicultural Assistant in the Bureau of Entomology at Washington, D. C., where he remained, doing excellent work under Dr. Phillips, until 1910. In 1909 he prepared a thesis on cluster conditions in winter, for which he was granted the degree of Doctor of Philosophy by Clark University. During this time Dr. Gates' annual course of lectures at Amherst was not interrupted, and in 1910 he resigned his position at Washington to become Assistant Associate Professor of Beekeeping, Apiarist of the Experiment Station and Inspector of Apiaries for the State of Massachusetts.

The beekeeping work of the Massachusetts Agricultural College was started with Dr. Gates' coming to Amherst from Washington. At the same time the inspection of apiaries under the State Board of Agriculture was started, the legislative act having been passed during the session of

The Mize apiary at Mt. Hope

1910. He has been very successful in developing all phases of his work about to the limit to which it can be developed in a State which does not contain very much more beekeeping territory than one of the larger counties of Ontario. He is an active and tireless worker, and, to use his own phrase, he "knows every gate-post in the State."

Dr. Gates is a prominent figure in United States beekeeping, being a past president of the National Beekeeper's Association. Nor is he unknown to Ontario beekeepers, as he has assisted the writer in short courses at the Ontario Agricultural College on different occasions.

When the development of the Pettit apiaries reached the stage that it seemed advisable for me to resign from the provincial work he came first to mind as a desirable successor; but he was not available at that time, and arrangements were made with a recent graduate of the O. A. C., who is doing excellent work in another of the United States colleges, to come on at once and avoid any break in the continuity of the work. The delays of red tape lost us the opportunity, however, and Dr. Gates was approached.

It is understood that he is to be Professor of Apiculture and Provincial Apiarist, and that an option in beekeeping is to be established in the fourth year of the course at the O. A. C. This will enable young men who are beekeepers or who become interested in beekeeping during the first year lectures on this subject to continue the subject during the second and third years and specialize in it for graduation. If this plan is carried out it will put beekeeping on a more equal footing with other branches of agriculture at the college. This is what the writer strove for with but scant recognition during his term of office. Many reforms only come by revolution.

Opportunities for beekeeping specialists were never better anywhere than in Ontario at present. While there is much yet to learn, the knowledge necessary to overcome the three greatest handicaps, swarming, wintering and disease, is available. Henry Ford and good roads have made the management of chains of apiaries under one expert profitable. People are going to try to keep bees. As a war measure, at least, they should keep them. Whether they keep them well and profitably or ill and as a menace to established beekeepers depends largely on the recognition the subject receives at the source of agricultural knowledge.

The new Provincial Apiarist is to commence his duties shortly, and we bespeak for him the hearty cooperation of all with whom he will have to do.

Georgetown, Ont.

If our people were very selfish, they might regret that as good a man as Friend Gates should be induced to take his services across the line. But we cannot be sorry, and there are two reasons for it. First, Canada is so close to us and so fraternal that we cannot realize the difference of government until we meet between us that decadent institution of a more or less prohibitive tariff. The second reason is that if they take good men away from us, we in our turn obtain some excellent workers from across the line; witness the acquisition by the Iowa College at Ames of that excellent teacher, F. Eric Millen. There should be no more jealousy between the States and the Dominion than between our own States. We believe the great majority of our readers will sustain us in this, especially in view of President Wilson's desire of a federation of nations, or as Upton Sinclair suggests, of an "Internation."—Editor.

The High Prices of Honey in France

From the "Petit Parisien," July 16, 1918

RECENTLY Mr. A. Caillet, Vice-President of the Grocers' Syndicate of France, aroused by the stupendous increase in the price of honey, which has reached, this year, the rates of 735 to 800 francs per kilo., while it sold in 1914 at only 140 to 180 francs, advised the grocers to abstain from purchasing, without having previously called upon these prices the attention of the authorities and requested regulations from the Food Ministry upon the price of honey.

On the other hand, the Prefecture of Police has mentioned this raise of prices to the Minister in charge. But, with the desire of clearing themselves of any suspicion of speculation, the wholesale dealers in honey assert that they are in no way responsible for this advance.

In fact, at their meeting of June last, the beekeepers of Gatinais agreed to double the prices of last year, fixing them at 7 francs per kilo, wholesale. This decision was announced in the columns of "L'Apiculteur." In consequence, the dealers find themselves compelled to sell at an average price of 735 francs per 100 kilos.

But the beekeepers are protesting against the proposal of regulating the price of honey. They assert that there is neither abuse nor speculation in their decision, but only a grievous concourse of circumstances, which render the precious product much more valuable because of the scarcity of sugar. They assert that 60 per cent of the colonies of bees in France have disappeared and that many of the beekeepers of the center will not secure, this year, the half of a normal crop.

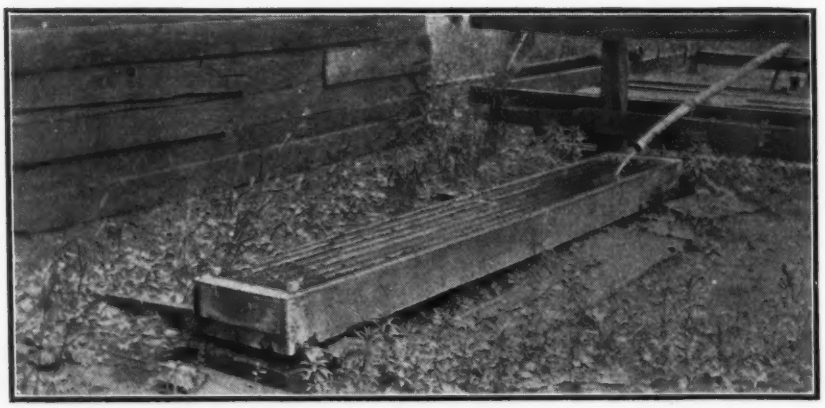
They call attention upon the price of labor and ask that the beekeepers of the late draft be given furloughs, like the farmers, since men cannot be found to take their place.

In regard to the consumers, who are the victims of any increase, whether justified or not, they can only make known their dissatisfaction before an increase which prevents people of small means from purchasing the precious product, for sweetening teas or for infant food. They take note of the fact that, while the country people ask 10 francs for their honey, numerous sales have been made in Corsica lately for 5 francs.

(A kilo. is 2.2 pounds. At the regular rates of exchange, 735 francs represents 63½ cents per pound. But European exchange is depreciated, at present, and the war exchange rates would bring the value down to a trifle less than 61 cents per pound. The above clipping from the "Petit Parisien" was sent to us by a French apiarist of note, with the letter which follows.—Editor.)

Letter of a French Apiarist

"You have probably read in the May-June number of "L'Apiculteur" that the Honey Producers' meeting decided to fix the price of Gatinais honey at 700 francs, and at 600 francs the value of average white honey. In ordinary times, the prices fixed by this association were fictitious, for honey really sold below the prices fixed, but this suited the dealers, who thus appeared to have reduced the price. The Vice-President of the Grocers' Syndicate has asked the State to regulate the price of honey and urged upon the grocers a boycott of the beekeepers. He forgets, of course, that, in 1917, the grocers bought the honey at 250 to



Watering place at Mize apiary

350 francs, and that they sold it for 500 to 700 francs.

The scarcity of honey is, unfortunately, too real, much below the average per colony, with scarcely 40 per cent of the colonies in existence, as compared with 1914. For two years past, it has been impossible to obtain sugar for feeding, and the loss of bees will be greater next winter.

The demand for honey is tremendous, and for that reason, the brimstone-bee-killers, "etouffeurs," will be very active, and will find numerous opportunities to buy colonies; for our country women (paysannes) will sell them the more readily, since prices are high and their many occupations prevent them from caring for their bees. It is therefore certain that colonies will be destroyed by tens of thousands in Brittany, in October and November. If I could have a furlough at that time, I would buy several hundred skeps to strengthen my colonies that have become weakened by want of attention. Skeps will sell at 40 to 50 francs each ($7.30 to $9 in current exchange rates), and they are very small in this region. Unluckily, I will not be at home.

I estimate that the spring of 1919 will open with not over 25 per cent of the colonies existing in 1914, in France. Yet the needs will be greater, as drought has increased the shortage of sugar. At the present time, we are allowed only 500 grammes (1 pound 2 ounces) of sugar per head, per month; how will it be next year? So you may imagine the demand in colonies and swarms. Everyone wants to have one or more hives, to secure a little honey. But it is almost impossible to find chances of purchase. It would be advisable that the State permit the apiarists to resume their work."

The information imparted by the above correspondence is encouraging to American beekeepers. We might add to this that the manager of the "Federazione Api stica Italiana," Mr. Cotini, returned to the stockholders, for the crop of 1917, 640 lire per 100 kilos for their honey. This price, at present exchange rates, would figure $44.61 per 100 pounds.

The demand for bees is extensive, not only in France, but in England, as well as on other parts of the European continent. So it behooves our beekeepers to take the utmost care of their bees and to be ready for the coming season.

But while they are greatly encouraged, the beekeepers must not boost prices too high. Honey has never before been higher than beeswax. It is selling at more than beeswax in some instances. The above shows that there is a demand for regulation of honey prices, in some countries. It is much better to be reasonable in our demands than to find ourselves restrained by government rules. It is to our interest to keep within the bounds of moderation. We must also bear in mind that these extraordinary prices are only temporary, as sooner or later sugar production will bring rates back to normal. The very short crop of the present season, through the entire world, is also responsible for the increase.

Punics and Parthenogensis

By Ph. J. Baldensperger

JUST a little over 27 years ago—I was then living at Jaffa, in Palestine—I read a few very erroneous remarks about our Oriental bees, as well as about Punics or Tunisians; the writer, John Hewitt, of Sheffield, signing "A Hallamshire Beekeeper," to introduce Punics into England, gave them virtues that they do not possess and charged the Orientals, as the scape-goat of Israel, with all sins.

Previously, in 1884, writing of fertile workers in the July 1 number of the British Bee Journal, J. H. said: "If a queen of these new races (Cyprians and Syrians) is removed, in rearing another a lot of fertile workers are also reared, and these begin laying as soon as the young queen, or sooner."

This bad reputation is certainly not founded on any very serious base. We raised hundreds of Cyprians, Syrians and Palestinians, and the fertile workers never troubled us more than did those of their congeners of European races, several years afterwards. Proper beekeeping, under such circumstances, would have been, if not impossible, at least highly disagreeable.

Certainly the Oriental races, having to fight bitter enemies, as hornets, wasps, bee-eating birds (the Merops apiaster) etc., sometimes attacking the colonies in swarms, they are more impatient than brown bees, Ligurians, etc. But this impatience, shown in rapid flight, stinging propensities, liberal use of propolis, wasp-like music, etc., has no influence on their intrinsic characteristics. I had then not yet seen John Hewitt's study on worker-bees, which your correspondent, Mr. John Anderson, M. A., of Scotland, thinks is parallel to the works of Schirach, Huber and Dzierzon (American Bee Journal, 1918, page 192). I noted down a few erroneous remarks of Hewitt, and if his "laying-worker theory," in Punics and Syrians were really well founded, I wonder why he ever dropped it. I noted the strange virtues ascribed to Punics and as I had seen a few of them myself, I put my remarks in a margin and will now give them for what they are worth.

Although Dzierzon studied only European bees, his theory holds good for every race of "apis mellifica or mellifera" and neither Punics nor Syrians have, to my knowledge at least, such a marvelous advantage as to be able to rear workers from a virgin.

John Hewitt, in order to give his Punics a shift, very carelessly propounded their qualities, and no other beekeeper then living seconded his views, or was lucky enough to see his assertions verified.

In the American Bee Journal for May 28, 1891, No. 22, page 701, John Hewitt (Hallamshire Beekeeper) writes about Punics:

Hewitt's Assertions

1. They are the tamest bees so far known, the only time when it is possible to get them to sting being when they have the swarming fever.

2. In crossing with other races, this docile quality is very marked, not even Cyprian blood being able to make them bad-tempered.

3. They are the hardiest bees known, being able to fly from and return to their hives, with safety with snow on the ground and mercury 30 above zero.

4. They do not fly into the snow like other bees.

5. They begin work at "peep of day"; before the sun rises they are out in full force and have the ground

R. A. Ashcraft's twelve-frame hives at Wichita

picked over before the other kinds are on the move. Probably this is the chief reason why they get more honey than any others.

6. If the day is rather dull or cool, they will be working in full force, though no other kind of bees will be flying.

7. The queens are very prolfic.

8. In a fair season the smallest nucleus will build up without feeding into a grand colony for winter. So much is this "building" quality present in them that a good, strong colony can be divided into 20 at the end of May and each will build up in a good season, without feeding, into a 10-frame colony well stored for winter, and yield one or two 20-pound supers of honey from the heather.

9. They beat every other kind of bees in their working energies.

10. They live longer than any others.

11. They fill and seal sections fuller and cap them whiter than any other race.

12. For extracted honey they have no equals.

13. They can eat the hardest and driest of sugar; in fact they will carry away the hardest and driest sugar loaf (when no honey is to be had) put under a shed and kept as dry as possible, thus reducing the trouble of summer, spring and winter feeding to a lower point than has ever been considered possible.

14. Although they search out sweets and carry them off anywhere, they are not inclined to rob their hives, honesty being with them a ruling guide or principle.

15. They swarm earlier than any others.

16. They fill cracks or chinks with an enormous quantity of propolis, and if natural supplies fail, nothing sticky comes amiss—bird lime, coal tar, etc. Some may deny that this is a desirable quality, but with it they keep their combs clean and thus make anything do, hives or baskets.

17. They cluster well on their combs, spread evenly over them and shake off readily.

18. They build little drone comb, but plenty of worker comb, as white as snow.

Baldensperger's Notes

1. The Punics are not quick to sting, but they sting when disturbed, for transferring, etc.

2. A cross with Palestine bees in 1888 made them pretty ugly, not to be compared with pure Palestinians, to be true.

3. Have seen them quiet in North Africa, not a single bee flying at 40 degrees.

4. Have not seen them fly in the snow.

5. They begin work with all the Palestinians, in a honey-flow, at "peep of day," and get no more honey than any others.

6. Our Palestine bees fly for honey, even if it is raining some, and so do the Punics, but they are not susuperior.

7. Queens are very prolific, as also are the Easterners.

8. In a fair season, a small nucleus will build up, provided there is a honey-flow. This building up does not go very far. My brothers in Algiers could not even double their colonies, though they made efforts. All they could do was to keep their 64 colonies. They had to reduce them to 50 in 1890. I took 195 pounds of extracted honey from one colony of Palestines, 130 pounds orange honey in Jaffa, 65 pounds thyme honey in the mountains of Judea.

9 The foregoing paragraph does not prove it.

10. I cannot say.

11. Have found them poor section builders, as all Easterners, and their section honey appears dirty from their tight cappings, and the propolis smeared on every comb. Tried them from 1892 to 1900.

12. None are better than the Palestines.

13. Have not seen them carry away any loaf.

14. They search out sweets to an alarming extent and rob their neighbors as well as do their Bedouin lords and masters. Honesty is unknown to them in any way, shape or fashion.

15. Possibly they do.

16. Every Eastern race uses propolis to a great extent. In Sarona, a swarm hanging on a tree was almost entirely surrounded with a protecting curtain of propolis.

17. Not as readily as Palestinians.

18. Yes, they are inclined to build less drone combs than Palestinians.

The enormous number of queen-cells mentioned by "A Hallamshire Beekeeper" was not found by me. I abandoned this race. The last colony I had in Palestine built only three or four queen-cells.

As a rule, bees are less liable to sting when they have the swarming fever than at other moments. Tunisians and North Africans do not differ, to my knowledge.

Palestine, Cyprus, Tunisia, Algeria and Southern France, all countries in which I have lived and observed bees during the summers, are not prone to such enormous and continual honey-flows as to permit the development of, say, more than a half dozen colonies in one summer from a single hive, to say nothing of stores for winter.

Nice, France.

Florida

By T. V. Porter

IN the July and August numbers of the American Bee Journal the editor relates his experience of "A Month in Florida," and prefaces his remarks by saying that "beekeepers who never went to Florida, and never will go there, can be counted by the thousands, so perhaps many of our subscribers will enjoy reading the experiences of a winter month spent in the South." While I belong to the other class, the few that go there, I believe my enjoyment in reading the articles was intensified many fold on that account. The mention of Fargo, Georgia, and the Suwanee river brought to mind the first view that wife and I had of the coastal plain country. We had been traveling all night and stopped for a few minutes in the morning at Fargo, where we could look from the car window into a dense growth of tangled trees draped with long festoons of greenish-gray moss and a large part of the wierd scene reproduced in the mirror-like waters of the song-famed Suwanee river, wife declaring that she could compare it to nothing but her childhood dreams of fairyland.

A day in Jacksonville, as it was then, was enough (it is bone-dry now) and we passed on to St. Augustine. As barefoot school kids we had often gazed at a picture of the old city gate in the geographies of 50 years ago and were intent on seeing it. Having been several weeks on the way, and tired of hotels and restaurants, we went to housekeeping in a modest way, and in buying supplies for the table from a near-by grocer,

T. V. Porter and wife in Florida

found some delicious strained honey put up in pint Mason jars with pieces of comb honey inserted. The grocer said, by way of guarantee of quality, that it was produced in his own apiary in the suburbs of the town.

If there is anything more interesting to the average beekeeper than bees, it is the other beekeeper, who, from the peculiar conditions in his locality has adopted a method and practice that would seem to be at wide variance with the orthodox teachings of the text-books, and has made a success of it. I was much interested in this apiary, for it was of the box-hive type, and the owner could give what appeared to be good reasons for the practice. Briefly told, his experience was that he had gone into the business in a small way, using "patent" hives, as all hives other than box are called locally, and that the bees could not protect themselves from the ravages of the caterpillar (presumably the bee-moth.) The result was that he was soon out of the bee business, thoroughly discouraged. On the advice of an extensive and successful Florida beekeeper, he tried again, using the type, or types, of hives shown in the pictures, with success.

The hive standing on end is the parent hive of the yard, kept for increase only. No honey is ever taken from it and it is allowed to swarm without restraint. The horizontal hives are the ones from which the honey crop is harvested or, to use the local term, are "robbed." The method of robbing, which is never done after the month of May, is as follows: The board forming the back end of the hive, and which is but lightly nailed, is taken off and smoke used to drive the bees from the first comb. A shallow square pan is inserted under the comb and with a thin blade the comb is cut from the sides and top of the hive, laid back on the pan and removed. Smoke is used again and the process repeated until the desired amount of honey has been taken, when the back board is replaced and the bees allowed to refill the space with honey. It may be easier to tell the story than to do the work, but it does not look like a very difficult job, after all.

When it comes to low cost of equipment and low upkeep, the box-hive beekeeper certainly has two strong points in his favor, and the reason for so many unkind pen jabs going his way may yet be found in the fact that he never writes for the bee papers.

Harrisville, Pa.

Parent hive kept for increase only

How Co-operative Associations Distribute and Sell

By Richard C. Gano

THE few honey-marketing associations now in existence have not yet advanced to the point where they require more than the simplest form of distributing and selling organization. The Colorado association, the Idaho-Oregon, the Texas group, all maintain a single central office, and the general manager is the man who circularizes the trade, thus finding carload buyers, and who superintends the shipping, which sometimes, as in the case of Colorado, takes place mainly from one central shipping point, and in others takes place from various local shipping points.

Such plans are admirable because of their very simplicity, replacing the more costly and complicated method of selling through numerous commission men or to traveling buyers. It must be remembered that the primary idea behind every co-operative marketing movement is just exactly this simplifying of selling and distributing ,and nothing else. So that to say an association's selling machinery is simple is the highest compliment one can pay it. This very simplicity accounts for the low selling cost—in Colorado around 3 per cent, in Idaho last year 3½ per cent.

But the associations are destined to grow, and this means that their selling and distributing machinery is also destined to grow. Consequently, it may be found interesting to take a little look into the selling and distributing methods of the larger farmers' associations of the country.

The fact of the matter is that there is only one kind of sales organization for perishable products. The honey concern with one central sales office, the cranberry association, with two; the California Fruit Growers', with over fifty—all use exactly the same system, in a broad sense.

The association, large or small, usually finds it desirable to have a personal representative in each big central market to which it sells or wants to sell. The new association may have only its one office for a time, but as business with certain cities becomes heavy it begins to find it wants a man on the spot, to investigate complaints, perhaps to report on condition of shipments coming in, and finally to drum up trade. Circularizing from the central office is excellent, as far as it goes; but where a market presents great possibilities it usually pays to work it intensively with either a salaried salesman devoting his whole time to it, or a broker devoting part time.

This is the way the greatest of all farmers' marketing association systems has gradually grown up. At the start it stationed salaried representatives in New York and Chicago. Today it is represented in every carload market in the United States and in the big central markets of a few foreign countries, and has over 50 distributing and sales offices. The offices in the United States are grouped into six sales divisions, a division sales manager being in charge of each. These offices, some of which have not one but five or six employes, are personally in touch with every carload buyer of citrous fruit in the United States. A typical office staff is that at Chicago, where are the Division Manager, Assistant District Manager, three inspectors and four employes. When this office was first established no one knew about it. The manager had to make himself known by calling on

A small part of the apiary

the local trade and circularizing them. Gradually he secured customers, and many of them became steady customers. Drumming up of trade became less and less necessary. Also, he began to need men to look after his secondary duties for him, when shipments began to be heavy.

These large organizations resemble to some extent the sales organizations built up by private manufacturers. They seem large and costly. They are. But when properly managed they represent vast economies. The California Fruit Growers dispose of their fruit at the same cost as do the Colorado Honey Producers their honey, namely, 3 per cent. Another efficient organization, that of the California Walnut Growers, does its selling through carefully selected brokers, paying them only 1½ per cent commission. They charge their smaller customers 2½ per cent up.

And, finally, this discussion would not be complete without mentioning an independent type of distributing organization which has grown up apart from any special marketing association, and specializes in distributing and selling for farmers' organizations which do not want to build up their own distributing systems. The largest, probably, of these great sales agencies is the North American Fruit Exchange and General Sales Agency. If we should separate the California Fruit Growers' Exchange into its two primary parts, namely, the close-knit organization of farmers in California, and the wide-flung net of salesmen blanketing the country, this second part, the selling part, would resemble the North American Fruit Exchange.

This Exchange will distribute for any farmers' organization whose proposition it can practically handle. It has sales offices in every important market, and these offices sell not one product, as does an office of the American Cranberry Exchange, but many products. One of their products is Skookum Apples, for example. The apple growers of the northwest thought better to affiliate with this Exchange than to build up their own private organization.

It is interesting to learn in this connection that the California Fruit Growers' Exchange is beginning to offer its sales service to one or two other organizations. For several years it has handled the output of a large deciduous fruit association in California, charging a commission just as a broker would. Recently it was stated that negotiations were under way whereby it would also handle the output of a California vegetable association for a limited time. However, it should not be understood that the Exchange is making of its distributing system a separate commercial enterprise. The deciduous fruit proposition just happened to fit in very nicely with citrous fruits and with practically no overhead increase, while other affiliations it may make will usually be found to be for the purpose of keeping its organization busy in what happens to be a dull season.

Investigation into methods of agricultural distribution will reveal many surprising facts which indicate that the old, inefficient methods are passing. The co-operative idea does not always develop spectacularly. Few farmers realize the great extent of co-operative activity in this country, either in successful operation or in process of development. It is a subject every farmer should study—for more and more is co-operation proving its value. The farmer who deprecates the co-operative system may awake some day to find nearly the whole of the industry in which he is engaged pushing forward under co-operative auspices and leaving him behind.

Texas Beekeeping

By C. S. Engle

MOST of the beekeepers in this part of Texas own several hundred to a thousand or more colonies of bees, all of which are probably located in outapiaries. Many of the beekeepers live in the cities and towns and maintain no home apiaries. The larger beekeepers use automobiles in their bee work and it really makes little difference whether they have home apiaries or not. About 50 to 75 colonies are generally kept in each apiary, for it is an easy matter to overstock a locality. The bees gather most of honey and pollen from shrubs and flowers found in uncultivated portions of the country. As some landowners have large tracts of land cleared and put into cultivation, at times the beekeeper is not always sure of a permanent location for his apiary and often has to move his bees to new fields.

One can readily understand that where there are many small apiaries, and the locations uncertain the beekeeper would not be over-anxious to build honey-houses at his apiaries. The honey produced is extracted and bulk comb; section honey is a curiosity.

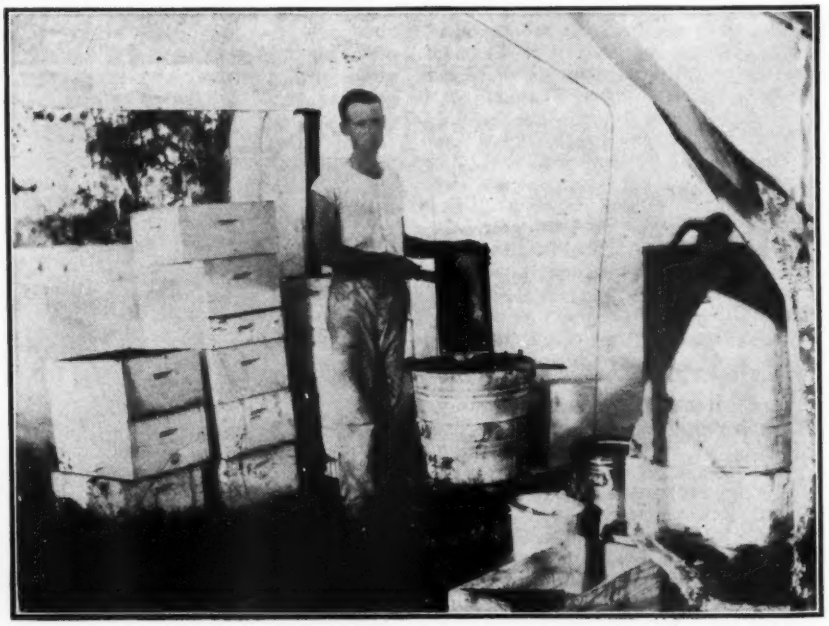
My outfit for taking honey consists of a two-frame reversible extractor, an uncapping tub, uncapping knife, butcher-knife to cut up the bulk comb honey, pails for handling honey in, honey strainer, cases of pails and cans, a light canvas tent and camp outfit. The camp outfit is a necessity, as my helper and I must stay over night when taking honey, if the apiaries are located many miles from home. This outfit seems small and incomplete to most beekeepers, no doubt, but remember that there are not many colonies at each apiary, and one wants to haul around no more than absolutely necessary.

The tent shown is the coolest one I ever worked in. There is a double flap door in the front of the tent with string for tying it shut. In each corner I use a 6-foot 1x4 to hold up the tent; a small rope runs from knob on top of poles to stakes driven in the ground. In center of the top is a long rope that I throw over a limb and draw top of tent up tight. This does away with a center pole.

For carrying honey into the tent I use what I call a "horse," generally made by nailing four legs to a shallow super and two pieces on the sides about four and a half feet long for handles. On the horse I spread a heavy cloth or burlap sack; then place on top of that an empty super. As fast as the combs of honey are brushed free of bees they are placed in the super and covered with a burlap sack to keep out the bees. Two men can carry two ten-frame full depth supers of honey with case on such a "horse." I find it faster than using a comb bucket or one man carrying a full super at a time, and straining his back, too.

I believe that an outfit such as herein described could be used with profit in many parts of the country other than Southwest Texas.

Beeville, Texas.



C. S. Engle's extracting tent

Swarm Impulse; Is It Inherited?

By Arthur C. Miller

QUEENS from cells produced under swarming conditions are among the best, but, unfortunately, there is a growing tendency to destroy such cells because someone said that queens produced then inherit the swarming tendency. Each season the statement is repeated without any evidence in support of it. It is merely a part of current beliefs as to heredity and is as erroneous as many others.

If queens produced thus were replaced with equally as good ones, no fault could be found, for the only loss would be the labor of the beekeeper; but the specially reared queens are often inferior, due either to method of production or transportation. The result of the change is a mediocre colony until the queen is superseded. "Supersedure cells" and "swarm cells" are identical; the conditions which produce one are present and operative when the other is produced. It takes but little observation to see the condition of a colony superseding its queen. She is slackening her laying, there is a disproportionate number of nurses to larvæ, and queen matters generally are on the down grade.

At swarming time we find the same relative conditions, only with greater numbers and more food present. In the first instance the failing queen produces the condition. In the second, slackening of the queen is due to temporary exhaustion, or clogging of combs with brood and stores, forces the slackening. In each case the result is the same—queen-cell production.

Swarming by no means follows supersedure during the flow (usual swarming time). Nor does an old queen always resume her full duty in the new home. It is far from unusual for an old queen to be superseded soon after the colony is established in its new home. I have noted five such cases this season. In those instances, swarm impulse followed normal failure of the queen.

I may not have used as many thousands of cells as some of the craft, but I have used a good many since 1880; and I have never yet been able to detect any sign of inheritance of swarm impulse from use of swarm cells.

In recent years I have reduced swarming to between one and two per cent of my colonies, and I have used many queens raised from cells produced in swarming colonies of my own and of other beekeepers.

It is folly to discard fine cells just because they were built by a swarming colony. Don't do it unless you really like to throw away time and money.

Save the cells which you cut from colonies about to swarm, but do not think that by cutting them out you are using the best method of stopping swarming. Of course, if you really enjoy digging through a big colony on a hot day and doing it at intervals for some weeks, and to many colonies, why, go ahead. Far be it for me to interrupt your amusements.

For my own part, I prefer to remove the queen, using her elsewhere. or destroying her, as I think best. Usually I then cut out or destroy all but two cells, leaving two of as nearly the same age as possible. If of the two cells left, one is ready to hatch and one just ready to seal, swarming with the virgin is not unusual. When two cells of nearly the same age are left, one is destroyed soon after the first hatches, but not so when one cell is very young or just started. Do not ask me why—I have a theory, but am busy just now, and it is of no consequence anyway—'tis the fact only which is of importance.

Save the "swarming cells" if the stock is good. The queens will not inherit any swarm impulse.

Providence, R. I.

Collier's can for feeding

A Good Plan for Filling Feeders

In our picture we show an arrangement in use by the Colliers at Goliad, Texas, for pouring honey directly from a sixty-pound can into the feeders. An extra screw can opening is soldered into one corner of the cans. For use the cap is removed and a special spout, made for the purpose, is screwed on. By loosening the cap at the opposite side to admit the air, the honey or syrup will flow freely from the can. Several cans can thus be fitted up with extra caps and filled with honey. Unless needed for feed they can be used for storage as usual and will be ready for instant use when needed. They are fine for carrying syrup to outyards, since the spout can be put in place on arrival at the apiary and the feeding done without exposing the feed to the bees outside, or the usual difficulty of getting the honey out of a barrel or other container.

Apiary Building and Equipment

The remarks by Mr. Morley Pettit, on page 152, American Bee Journal for May, instructed me very much, because my thoughts have been persistently traveling along the same groove; but somehow I never got exactly the same deductions.

I want Mr. Pettit to accept my assurance that any remarks I may make are not due to any hypercritical condition of mind on my part, but are actuated by my desire to learn, or to overcome difficulties which I have hitherto been unable to solve to my satisfaction. There are several matters which Friend Pettit and myself do not view through the same spectacles, which I cannot touch upon without making this too long; but I may mention the capping melter. I feel hopelessly old-fashioned with regard to the use of the melter. The orthodox methods are to run the honey straight from the extractor per medium of various heaters, etc., into the jars, ready for market. I have never been able to do this and I fear I never shall. It would be "a consummation sincerely to be wished" to be able to have the cappings go through a melter and be separated into wax and honey without any deterioration of the latter. I know that quite a lot of people, both in Australia and America, claim to be doing this, and it is the fact that I cannot, which makes me feel old-fashioned. I have tried many of these stunts, but I have always been forced to the conclusion that one cannot improve the lily by painting it. Of course, locality counts for a lot—a whole lot more than people generally recognize. For instance, Alexander could do many stunts with bees, due to his peculiar conditions, which are utterly impossible in most other places. There may be peculiarities in the honey which may make the use of the melter feasible with the other fellow, although it is not with me. I wish it were.

I have tried the standard melters and have experimented with various ones which my son, Phil (who has an inventive turn of mind), has made from time to time, but they all darkened the honey, and in most instances utterly spoiled it, in my opinion. There is a delicacy or aroma and flavor about honey which is easily lost if exposed to artificial heat. I am loth to apply heat in any form if it is possible to avoid it. I use a gravitation strainer which has a water jacket, but heat is never applied to this unless the honey is so cold and thick that it will not accommodate the stream from the extractor. I never could get any satisfaction from straining through any material; but I am not at all sure that it was, or is not, due to my want of knowledge on the subject, because I know others who do so and find it "fills the bill." I am beginning to discover (after 30 odd years of beekeeping) how little I know; or, as Josh Billings puts it, "How much that I know is not so."

MAJOR SHALLAD,
S. Woodburn, N. S. Wales, Australia.

On the Store Room Shelves

By Mary G. Phillips

WHEN the first shivery nights demand an extra blanket on the bed, and we begin to wear clothes that are faintly reminiscent of moth-balls, it is time to think of winter foods. The Food Administration says that enough vegetables and fruits have been canned in American homes this summer to allow most of the commercial output to go to the soldiers. This not only means releasing needed food, but also lessening transportation difficulties, for most of the canned goods purchased for home use has been shipped by train, sometimes all the way across the continent. The motto of most American housewives for the summer, even with the thermometer at 100 degrees, has been

"Count that day lost whose low descending sun
Looks down and sees no worthy canning done."

And now they may reap their reward, for the winter meal problem is solved with a cellar stocked with a variety of garden products.

The Food Administrator tells us, however, perhaps in order to keep us from becoming too conceited over our achievement, that our labor in canning has not been sufficient unless in our storerooms we have the equivalent of the following supplies, given for a family of five: There should be for every winter month at least 25 cans of vegetables, 20 cans of fruit, 1½ bushels of potatoes, and half a bushel of other root vegetables. If your shelves can boast of this large a supply then profiteers may howl and retail prices may soar—your family, at least, may live comfortably, and all winter you will have that easy sense that comes only with the accomplishment of a hard task faithfully performed. The thrifty ant and busy bee have their day when the butterfly and grasshopper starve of hunger in the cold. Of course, it has not been possible for every thrifty ant among us to accomplish such results as the Food Administration has pictured, for undoubtedly, although most of us have had gardens, there have been the usual obstacles to perfection—weeds, bugs, drought, and the neighbors' chickens, and some neighbors have more chickens than others. The most fortunate women have been those on the farms where there is always an abundance of every sort of food, and the most unfortunate have been the city dwellers with no gardens, who have had to battle with retail grocers, almost as hard a struggle as that of the farmer against his bug and weed enemies. But, as usual, the law of compensation works, for it has been the farm women who have had least time in which to do their canning, even with an abundance right at hand, while the city women, who have to spend a great amount of time and energy in going from place to place trying to find fruit and vegetables cheap enough to can, have conveniences which make the actual canning quick and easy.

No matter what our winter stock may be, now that it is all on the shelves but a little green tomato pickle, it behooves the ant to be still thrifty, and conserve her supply so that it will surely last through the winter. To some people meals mean meat and potatoes—heavy, fuel-producing foods, and nothing more, but that is as bad a diet for winter as it is for summer. The body needs some fresh fruit or vegetable every day during the winter to give the proper elements of growth, and the essential acids, and it needs as well one of the protective foods each day, that is those foods which assure the body sufficient mineral salts. The following list of protective foods is a good one to memorize or tack up on the wall: Brussels sprouts, cabbage, cauliflower, celery, collards, lettuce, milk, onions, spinach and Swiss chard.

Variety in winter meals is rather difficult unless one looks ahead and plans definitely with that in mind; but when once the plan is made, the greatest bugbear of winter meals is over. Take a sample store-room for illustration, in which everything has been canned from a small home garden, and nothing has been bought to put up. Here are 26 quarts of string beans, 16 quarts of lima beans, 31 quarts of tomatoes, 10 quarts of beets, 6 quarts of kohl rabi, 87 quarts of canned early apples, 12 quarts of peaches, 26 quarts of cherries and 100 jars of jam of various sorts. According to the Food Administration figures, this supply is inadequate indeed for the five winter months for this family of five. The housekeeper has only 89 quarts of canned vegetables, when she should have 150 quarts. She must make good this deficit by buying canned goods from her neighbors if possible, or from the nearest canning center, naturally buying such vegetables as she is without, particularly peas, corn and greens. But leaving out of the question what she must buy, how shall she use what she now has in her cellar? To begin with, the date should be set for the time when she will begin to draw upon the winter supply, Probably November 1 in her locality. If she expects to use from her storeroom until April 1, it gives 20 weeks of winter to provide for. Having 26 quarts of string beans on her shelves, the family may regale themselves with this delicacy once a week with a little leeway for the unexpected and unsuspecting guest, when an extra jar may be opened. With 31 quarts of tomatoes, one can a week may be opened, leaving a quart to be used once in two weeks for soup. With 87 quarts of apples ready to use, think of the desserts! Apple pie one day a week, made with honey, of course; a honey brown betty another night, apple sauce for the children, apple cake—but why enumerate all the delicious things to be made from those 87 quarts. Having only 12 quarts of peaches, they must be opened with care, one every two weeks, probably every other Sunday evening for tea, remembering to invite the minister in the evening those luscious peaches are due. With 26 quarts of cherries there may be cherry cobbler or cherry pie once a week, and the night that comes is the one on which to invite daughter's latest soldier to dinner. It may readily be seen that planning of this sort means a saving of effort, and as there will be constantly a greater demand upon women's time for other work during the coming hardest winter of the war, we must plan ahead and get out of our way as much detail as possible, in order to leave room in our days for the other things needful.

There is a small and easy job on our hands right now, in which every club, every family, every church and every community should be helping—the saving of pits and stones for gas masks. Here is the list of materials needed, and if every mother would see that the collection which goes from her house contains **no other pit or stone,** it will save a tremendous amount of sorting afterward: Peach stones, prune pits, apricot pits, olive pits, date seeds, cherry pits, Brazil nut shells, and the shells of hickory nuts, walnuts and butternuts.

Washington, D. C.

Notes From German Switzerland

By C. W. Aeppler

IN April, 1918, a census was taken of colonies of bees and beekeepers. It goes to show that the beekeeping industry is on the decline in Switzerland. Switzerland possessed, in

1901—42,257 beekeepers, with 242,544 colonies.
1911—34,351 beekeepers, with 225,030 colonies.
1918—29,460 beekeepers, with 204,128 colonies.

In the last 17 years the number of colonies diminished by 16% and the number of beekeepers by 30%.

Probably for the first time in history has the price of honey to the consumer been fixed by any government. During the past two or three years there has existed considerable speculation on the honey market. In order to put an end to this speculation, the Department of Economics of the Swiss Government fixed the price of honey to the consumer at 6.50 Fr. per kiligram. This is at the rate of 64 cents per pound. Under the stress of high prices during the war the consumer knows in advance what honey will cost him. Possibly such a procedure would be a good thing in Switzerland for all time, but the same would be a debatable proposition, at least during normal times here in the United States. Some of the element of competition would be done away with. There would, however, be some direct benefits. More direct marketing from the producer to the consumer would result. The consumer, knowing the price he would have to pay, might feel more inclined to deal directly with the producer. The bee-

keeper, on the other hand, would not be subjected to profiteering on the sale of his honey to a jobber. Since the wholesaler must sell at a certain price, it would be easy for the producer to figure out a fair profit for the middle man if he cared to market his honey this way. The beekeeper would receive his share of the pie, whereas at present, in many cases, the middle man gets the biggest share. Even with many kinds of honey to consider, a scale of maximum prices for the various honeys would be a possibility. In the long run the producer would be benefited by a more uniform price over a series of years, and the sharks of the honey market eliminated. Those who are satisfied with a just profit would remain and the friction between the producer and the middleman would be lessened. The plan is at least worthy of consideration.

The Swiss Bee Journal for June says: "Beekeepers, feel concerned about your wax. The time is near at hand when foundation can only be secured by the direct exchange for an equal amount of wax." During the month of May the price of wax increased from 6.50 Fr. to 7.50 Fr. per kilogram; and the price of foundation increased during the same period from 8.50 Fr. to 9.50 Fr. per kilogram. Converted to terms of pounds and our money, the price of wax in May was increased from 64 to 73 cents per pound; and the price of foundation from 83 to 92 cents per pound.

In an article in the July issue of the Swiss Bee Journal, dealing with the chemical analysis of honey, Prof. Dr. H. Kreis states as follows: "If honey is reduced to dryness so that only a residue remains, and this residue is burned, only ash will remain, i. e., a substance, not capable of being burned further, consisting of various bases, such as sodium, potassium, and calcium carbonates, magnesium and iron, which when treated with phosphoric, hydrochloric, nitric or sulphuric acids can be reduced to their respective salts. Honey, therefore, contains the so-called salts of nutrition. However, their quantity content is extraordinarily small; in most cases the ash contains from .1 to 1%. There are also honeys that contain less than 1% in their ash, and the rule can be laid down that the light honeys contain less ash than the dark honeys."

Oconomowoc, Wis.

The Illinois Meeting

The Illinois convention is postponed, owing to the influenza prevailing at the time this was written.

Mrs. Jas. A. Stone, wife of the worthy secretary, died October 17, of pneumonia, following the attack of this trouble. Mr. Stone has the sympathy of the fraternity in his sorrow.

New York State Association

The New York State Association of Beekeepers' Societies will be held in Buffalo, N. Y., on December 3 and 4. All beekeepers are invited to attend.

BEE MEN WORTH KNOWING ABOUT

John Donnegan, a beekeeper in spite of a handicap

A Texas Veteran

John Donnegan, of Seguin, Texas, is one of those delightful southern gentlemen who make you feel that it would be a joy to know more intimately. In spite of a handicap which would discourage the ordinary man, he has been a successful beekeeper for these many years. The photograph shows the ingenious manner in which he is able to handle hives and supers with one hand. At the corner of each one he has placed a screw-eye in which he can fasten the snap at the end of the strap hanging across his shoulder. The strap thus takes the place of one hand very nicely.

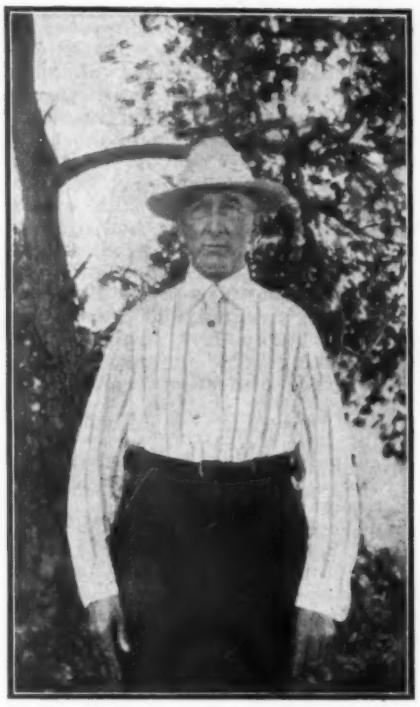
Mr. Donnegan is a well-known figure at Seguin, having held public office for a long time.

Annual Picnic

The annual picnic of the South Minnesota and Western Wisconsin Beekeepers' Association was held this year on August 21, at the home of one of the members, Mr. E. N. Cady, Lewiston, Winona County, Minn. The social side of these meetings, we think, is of as much value as the benefit derived from the bee talks and demonstrations.

The first item of each of these picnics for the past three seasons has been that the "host" member explains his methods of handling his bees for a complete year. Discussion follows that with a carefully prepared program.

L. V. FRANCE.



Chas. D. Mize

A Gentleman From Kansas

No, we have not been hearing much about Kansas beekeeping until recently, but just the same Kansas beekeepers have been busy bringing home the honey. The time was when Kansas was chiefly famous for dry weather and grasshoppers, but of late they are producing as much alfalfa, wheat, and as many apples as the next one. Now Kansas is coming into the limelight as a honey-producing State.

Charles D. Mize is the President of the Kansas Beekeepers' Association. He has a very fine apiary down at Mt. Hope, in the Arkansas Valley, where he gets about 100 pounds per colony of surplus, one year with another. He became interested in bees in his boyhood back in old Kentucky and his interest has grown with the years. It is safe to say that Mr. Mize would miss his dinner to meet a red-blooded beekeeper who could tell him something new about bees.

Professionally he is engaged as a field agent for a financial concern with headquarters in Topeka, but there is no more practical honey producer in the State of Kansas. He gives without stint of his time for the success of the Beekeepers' Association and is enthusiastic in support of every movement aimed at the advancement of beekeeping.

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

When Dr. Miller began beekeeping he first produced comb honey in boxes containing 4 or 5 pounds, the boxes having two sides of glass, some of them four. When the honey extractor was invented he got one of the first that was made in the country. It was a Peabody, took two combs, can and all revolving together, and it was not the easiest work to turn it, for one had to stand bent over, with the constant danger of being cut by the tin tops of the pockets as they revolved. Then sections were invented, and he returned to comb honey, for a great many years taking pride in producing the finest grade of section honey.

Some three or four years ago, with an up-to-date extractor, he produced part of his crop in the extracted form. This was not because he thought extracted more profitable than comb. It was not because Uncle Sam urged extracting; that was a thing that came afterward. One reason was that he wanted to know how the work of the two kinds of honey would compare; and he also wanted to learn something about producing extracted in a somewhat modern way. Perhaps a stronger reason was that he believed it to be more for the general good to produce honey in the extracted form, since more would be produced in that form, hence more eaten, and the more eaten the better for the health of the general public.

The 5-pound friction-top pail was adopted as the sole container. Just exactly why it might not be easy to say. Perhaps that size would accommodate the greater number of consumers, and it would be less trouble to have only one size than to have different sizes to suit different customers.

What about the honey granulating? Consumers "in this locality" had been accustomed to comb honey, and might not take kindly to the candied article. Should the honey be taken back and liquefied, as is the custom of some? That would be a lot of trouble. Should a campaign be undertaken, as some have done, to educate the public to use candied honey, and if so, how should that campaign be conducted? It was decided to do neither, but to let the honey stand on its own merits, with no attempt at educating the public except with what education there might be in the label, which reads:—well, first what it doesn't read. It doesn't read anything about the honey being pure, and $100 being paid for proof of adulteration. All that might be said about its purity is taken for granted, and there is no suggestion that anyone might think of adulteration in the case. Here, however, is what is found on the label:

HONEY
From the Apiary of
C. C. MILLER
Marengo, Ill.

The candying of honey is the best proof of purity. This honey will candy during cold weather. To liquefy candied honey, put the pail in hot water. Do not let the water boil.

It may seem a little strange, but it is the truth, that never in a single instance has a word of fault been found as to granulation, so far as we know. Conditions are at present unusual, but whatever the reason, extracted honey seems more popular than did ever section honey.

Members of the firm of Sires and Sires

Honey in War Time

Honey has always, until late years, been counted a luxury, especially in the west. We may send out recipe books, or write about the use of honey and it seems all to be Greek to the public. I have found out that you must get right among the housewives. I had the pleasure not long ago of meeting one of the northern Idaho ladies (Miss Davis) who was on the Food conservation committee, and was giving us a talk at Sand Point, Idaho, on conserving food. But very little was said about honey, as she had not used it very much herself. She advocated everyone having a hive of bees, but could not tell us how to use the honey after getting it. So I was asked to give a demonstration on cooking with honey, which I was glad to give. I made a display of the fruits and jelly (also opened up some for the ladies to sample), which I found a very satisfactory way. You would be surprised how little they knew and yet so eager to learn the use of honey, even the demonstrator sent out by the government said she had not come across anyone that could tell her much about it. So, as honey producers and honey users, it behooves us to get busy. Honey at one time was counted as a luxury, but not so now. We are at war, and it is not a matter of dollars and cents, but how can we help win the war. While there are "Corn Meal Books," "Oat Meal Books" and other substitute books going out, what are we doing? This is a new thing, and it is up to us women who have used the honey, to tell what we know. We use about $1 worth of sugar in 12 months and Mr. Sires is very fond of sweets. I can all my fruit, make jelly, jams, sweet pickles (for I make honey vinegar), and sweeten all my pastry with honey. Now that they are having so much cooking done in the schools, there is no better chance than to offer your services there and have a demonstration day. You will be surprised how many mothers and sisters will come out. It is a poor business that is not worth talking about.

We have two large windows facing the street. We have a display of honey cookies on hand to sweeten the palate. We find it a good way to advertise. When I go to the Red Cross I take my lunch and with it a small bottle of honey, cookies, barley cake or something that I can pass around, and at the noon hour give the folks a treat.

MRS. ARTHUR SIRES,
Wapato, Wash.

The National

The National Beekeepers' Association will hold its next convention in Chicago, Ill., February 18, 19 and 20, 1919.

I have waited, expecting to have part of the program in shape, but correspondents have been rather slow in answering my letters, so will have to announce it later.

FLOYD MARKHAM,
Secretary-Treasurer.

The Pennsylvania Beekeepers at the Sterner apiary

The Pennsylvania Field Meet

The Pennsylvania Beekeepers' Association held a summer field meeting at the apiary of Dr. E. E. Sterner at Wrightsville, July 6. Dr. Sterner, Dr. H. A. Surface and Prof. Rambo were the speakers of the day.

Michigan Convention Notes

The annual meeting of the Michigan Beekeepers' Association, which will be held at Lansing November 19, 20 and 21, promises to be one of the best of good times and one of the most profitable meetings of Michigan beekeepers in recent years. The present indications are that all the previous records of attendance will be broken. Practically all county associations will send delegations of considerable numbers. This will be one of the rare opportunities for beekeepers to talk with some of the most successful men in the business and learn many of the secrets of their success. The discussions, as appearing on the program, will center around the subjects of the proper size of hives for best results, the use of combless packages, modern methods of marketing with special reference to the possibilities of a producers' co-operative organization and the honey-producing possibilities of the Upper Peninsula. The most of the program will be in the hands of Michigan men. Mr. C. P. Dadant, of the American Bee Journal, and Mr. E. R. Root, of Gleanings, have consented to be present and give Michigan beekeepers the benefit of their very broad and valuable experience. A banquet will be held on the evening of the 20th. Plan to sidetrack everything and join with your fellow producers in having a most enjoyable and profitable time. If you have not received a program by the time you read this, send to the undersigned for one. B. F. KINDIG,

East Lansing, Mich.

Simple Method of Rearing Queens

Take a new, fresh sheet of medium brood foundation, secure this in a brood frame and place this in the center of the brood chamber by removing one of the outside frames that usually contain no brood; then move the frames out, leaving a space in the center for the new frame. When this is drawn out and filled with eggs remove to a warm room if the weather is a bit chilly, and cut in strips by running a sharp, slightly heated knife through one line of cells, then skip one line and cut through the third line of cells. This will give you one row of cells not molested. Cut off the cells on the opposite side one-sixteenth of an inch from the foundation; have previously arranged a frame with two or three cross-bars; secure the strips of cells to the under side of these bars in such a position that the cells will joint down when your frame is placed in the hive, when the bees will do the rest, giving you a fine lot of queen-cells which, when capped over, may be used according to methods described in various works on this subject. If it is desired to use both sides of the comb, take two sheets of foundation, place these together with two sheets of tissue paper between them, cutting the paper a little smaller than the foundation and pressing the edges together. By trimming the edges these two sheets will readily part, giving you two sheets drawn on one side, or twice as many available cells.

A. CHENOWETH,
Stewart, Nebr.

Foulbrood—Swarm Control, Etc.

I have had American foulbrood and am now sure that my colonies are free from it. American foulbrood is much similar in its actions to hog cholera, which I have had on my farm twice during the last year. A few may get well—most of them will die. A few will be immune or will not contract the disease. I have had two colonies to become less and less until no more dead brood would be found. I have never found a badly affected colony to be able to throw off the disease unless treated by the regular plan given in past numbers of the American Bee Journal.

I have taken queens from badly infected colonies and introduced them in other colonies and never had the queens to carry the disease.

Practically all the bees died in this locality during the last ten years.

The last two years the bees have become as plentiful as ever. I believe that the immune or resistent strains have survived.

The plan of hiving several swarms together has not been a success with me. They swarm again or loaf with an abundance of room. And along with the above to let old queens go back to old stand after hiving bees with other colonies has been a failure with me. The old queens disappear.

The method of continual destruction of cells was a fizzle, also. In time I had bees with no brood, frequently with old queens present, but no brood of any age. I had to give these colonies cells in order to raise queens.

I was disappointed in giving a strong colony but one cell. Frequently that one young queen took practically all the bees and left without leaving their future address, with a queenless hive and few bees left behind.

I have had several queens of this year's raising to swarm and make their get-away. I find that certain strains of bees do not swarm as readily as others. They gather more honey. I have had one queen to be laying in three days after she came from the cell. I opened the hive immediately after the second swarm had issued in order to get some young queens. I found the bees holding several queens in their cells. I brushed the bees off a cell and out came the queens, and I put them in another hive that had cells. In three days there were fresh eggs. The weather had been very rainy before this swarm issued.

Most of the queens begin laying before they are ten days old, but frequently it will be two weeks, especially if there is no honey coming in and conditions are unfavorable.

The above conclusions have been from the handling of powerful colonies—from 10 to 18 frames of brood before white clover harvest,

JNO. M. BIXLER,
Corning, Iowa.

More About the Loss of Brood in the South

Noticing the article on "Losses in Southern Beekeeping," page 344, by Joseph C. Scott, Mt. Pleasant, Ala., in which he describes a brood disease which I think is the same that I have known for a long time, I thought it well to give my experience with it. While I lived at Leslie, Sumpter County, I noticed it about the same time of year and about every year, with appearance much the same as he describes. With me the first appearance of it was the purplish color of all the unsealed larvæ. Some of it would die and then turn white and, if not removed by the bees, would finally turn black, and in bad cases the comb would have all the appearance of pictures of foulbrood we have often seen in the bee papers. When the cotton began to yield honey the disease usually disappeared rapidly, so that I never experienced much loss from it while I kept bees in that locality. Since removing my bees to this place, less

than a year ago, it has been a more serious matter with me the past summer than it ever was before. Many of my colonies were badly weakened by it, a few swarming out and leaving lots of brood and some honey, and others dwinding and dying out. It continued longer this year than I ever knew it to do before and seemed to affect the adult bees, too, as some pretty fair colonies would get very "mothy," and I had to take their combs from them or lose them. I don't think that it is a specific disease like foulbrood, but that it is caused by the food partaken of by the bees. I do not pretend to know what it is, but would suggest that it may be caused by the juice of fermenting, rotting fruit, probably blackberries, as it always appears while such are to be had, and at no other time—at least in my experience. I suppose it was made worse with me this year by the failure of the early crop and the general scarcity of good forage at the time of its usual recurrence. I am sorry that I can see no practical remedy for it, but do not think it has been very serious in this region heretofore, and perhaps will not be again for many years.

T. W. LIVINGSTON,
Norman Park, Ga.

The Iowa Convention

We have received word from President Millen that they are expecting a "Best Ever" time at Des Moines on November 6 and 7. They expect Prof. Morley Pettit, formerly Provincial Apiarist of Ontario, to be present and give an illustrated lecture on "Beekeeping in Canada." It is expected that many middle west beekeepers will avail themselves of this opportunity to see and hear Mr. Pettit. The complete program has not yet been announced, but we are advised that it will be up to the usual Iowa standard. It is expected that a visit to Camp Dodge and to the Mid-west Horticultural Exposition will be a feature of the convention. Since so many have relatives at the camp and the meeting coming at the same time as the Horticultural Exposition, it is expected that the attendance will be large.

Report From Missouri

This is fine location for bees, except for considerable foulbrood. There is about 5,000 acres of bearing apple orchards, perhaps 200 acres of peaches, 500 acres strawberries, some acres of raspberries and blackberries; also cherry orchards, quite a few acres of sweet clover and white clover. Our greatest drawback is that nearly every fruit man has some Inghram apple trees scattered promiscuously about in his orchard, and they bloom about 10 days after other varieties, and as the spray applied to orchard after petals fall on other varieties finds the Inghram in full bloom and many of them carelessly spray all at once, thus filling the Inghram blossoms that are full of bees, with a strong arsenate spray and killing the bees by the thousands just when they are needed so badly to build up for raspberry and white clover.

I have very little trouble keeping down the foulbrood. but we are never safe from it, as this is a timber country of many large hollow trees.

The beemoth is at its best here and is a blessing, as it soon cleans up the badly diseased colonies.

I. E. JOHNSON,
Marionville, Mo.

California Conditions

It has evidently started in to be a great year next year, to put it in that way. Early last week we had our first rain—there were full two days of it and it did not stop until we had some four inches of it hereabouts, and diminishing quantities in various other portions of the State. It was the earliest rain that I know of in California—and it was far the heaviest. It usually rains by the end of September; the 28th seems to be the fortunate date for the first precipitation.

Of course, such a heavy rain did much damage to uncovered hay and grain, but prunes and grapes in the drying districts are the heaviest sufferers. Millions of dollars worth of these fruits are ruined. Wine grapes will not suffer so badly, though I suppose the quality will be lowered by the excessive moisture.

The tomato crop is badly damaged —that is, the ripe and ripening crop, The green fruit has yet many months of warm weather before the November or December frosts put the plants out of commission. I have seen tomatoes in full swing hereabouts away off into January. Nearly all other vegetables except, perhaps, ripening beans, will be benefited by the aforesaid rain.

And the bees, what a boon it has been to them! And it is for this reason that I stated in the opening sentence of this letter that "next year is to be a great year." Two years of dry weather had a bad effect on vegetation; some plants made little or no growth. The rain coming so copiously at so early a time, will cause many plants to start into growth and become strong for the next season's flowering period. At any rate, the root-systems will have ample opportunity to expand and be ready for vigorous "nectar-campaigning" next spring and summer.

The annual crop of honey-secreting flowers will get an early start and be benefited in a two-fold ration. Take, for instance, the alfilaria or pin weed class; we have two varieties that are invaluable to the apiarist. In two or three days after the early rains the seeds of these plants sprout, and I believe there is no other plant that comes to its season of inflorescence so soon after coming up as does this plant, botanically called *Erodium.* It is not a native of California, as many residents suppose. Its native habitat is the European shore of the Mediterranean Sea, mostly, I believe, in Spain. It was brought to this country, as near as can be learned, in the wool of sheep imported from Spain by the early settlers of what is now the southwestern portion of the United States.

In moist places alfilaria may be found in bloom the year around, but it expands its petals in early winter and into summer if the season is propitious, as it surely will be from now on. It is an abundant yielder of nectar, which is largely used in brood-rearing, as it comes at the proper season

Bees kept in the neighborhood of places where fruit is spoiling from the effects of the unusual rains, will be apt to unduly concentrate their foraging propensities upon its juice and in consequence store up food which will cause mortality among the bees. And so it behooves the apiarist, whose bees gather such stores, to deprive them of the combs containing them.

These days my bees may be merrily bringing in nectar in fair amounts, largely from *Eucalyptus viminalis.* There are many flowers in bloom in the gardens throughout the city of Berkeley on the north of me, and in the city of Oakland on the west and south, while off on the east the hills begin, on which wild flowers are in bloom, the most numerous being wild buckwheat. But the fall flowerage is

Annual picnic of East Minnesota and West Wisconsin Beekeepers' Association

never a dependable quality with us; this fall it will be better than usual, owing, I am sure, to the aforesaid unusual rain.

W. A. PRYALL, Oakland, Calif.
September 20, 1918.

The California Short Courses

The University of California, in cooperation with the Bureau of Entomology of the United States Department of Agriculture, will hold a series of four short courses in apiculture, from November 25 to December 21. The object of this series is not to induce a lot of new people to take up beekeeping, although, of course, beginners will not be discouraged. It is rather designed to bring the commercial honey producers of the State together for consideration of the scientific aspects of the business of honey production. The program is extensive and includes much concerning the fundamentals of bee behavior in addition to the usual practical applications. Several beekeepers have been invited to assist the University and Department officials in the conduct of the courses.

The dates and places are:

San Diego, November 25 to November 30, 1918.

Davis, December 2 to December 7.

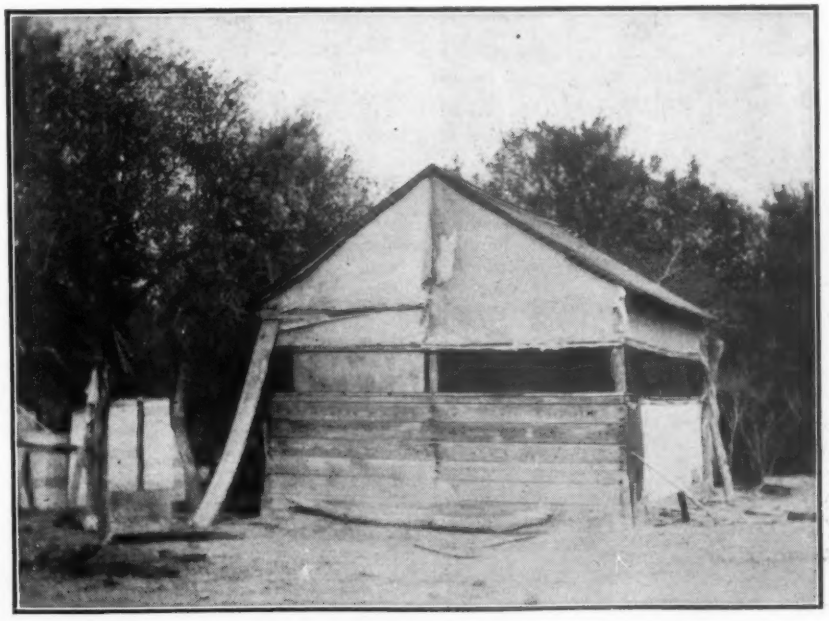
Visalia, December 9 to December 14.

Riverside, December 16 to December 21.

Those interested will do well to write to Prof. G. A. Coleman, Berkeley, Calif., for a complete program.

A Ventilated Honey House

George Schmidt, of Crystal City, Texas, has a very ingenious plan of ventilating his honey house and at the same time attracting the bees away from the door in extracting time. He has a belt of wire screen about three feet wide entirely around the building as shown in the picture. This makes the building cool in hot weather and at the same time serves to prevent the bees bothering about the door while honey is being extracted. Beekeepers who have occasion to extract during a dearth in the honeyflow have no need to be told that the bees become very annoying at such times in their efforts to get into the building. With this large amount of screened surface those attracted to the building and scattered over a wide surface do not congregate in such numbers about the door. The average honey house is a very hot place to work in midsummer, and this plan, once tried, is likely to prove popular.



A ventilated honey house

A Wizard's Secret

A few years ago, on a June afternoon, I was going to Vouvry, a neighboring village.

On the way, I heard my name called by an old woman, who was popularly nicknamed "hyena," and looked like one.

"Ho! Louis; I have a swarm out and it has settled in the brush. I can't reach it. Come and see."

As any lover of bees might do, I followed her. The swarm was settled in small lumps on a number of leaves of nettles and thorny bushes. What to do? A hive, shaped like a coffin, had been brought, and I began to cut the leaves around it with a pair of shears. But all at once, I noticed the queen, gravely walking about on top of a small group of bees: I cut down the stem, and at once introduced those few bees into the hive. This was quickly done. But the thought came to me to play a joke on the old woman.

"I cannot get those bees in," said I. "The only thing that will bring them is a 'secret.' Turning my back upon her, I took down my hat and made in it a number of cabalistic signs, while pronouncing a few words in unintelligible language.

She was watching me with a great deal of concern, out of the corner of one eye. I placed my hat back on my head and said: "You did not look?" "Na," said she. "Well, let the secret work out."

After 20 minutes we came back to the swarm, carefully, silently. Oh, what a miracle! The bees were roaring at the entrance, fanning it with their wings. And the fearless unbelieving old woman exclaimed in wonder: "If you ain't a wizard, there ain't none!"

L. REY.
(Bulletin D'Apiculture), Switzerland.

Bees at the Front

We are very much interested in your journal and after I have studied it it is sent to my son in France, who is an enthusiast where bees are concerned. He secured a swarm which was found attached to the wire entanglements, and it has come through some trying times. When discovered, he had nothing to hive them in, but went to a Y. M. C. A. hut, where he got a large empty case and a sack. While away he found some soldiers had been throwing stones at the swarm, causing it to be divided into three parts. However, he managed to gather them together onto the sack, thence into the packing case. This case being too large, he had afterwards to get a smaller one, and fix up some frames with what material he could find around, and they have lived through the winter. In the early spring the Chinamen had been at it and upset the hive and had broken the combs for the honey. Fortunately he was able to visit them soon after and found the queen on the ground alive, placed her in the case again along with what bees he could secure and fixed up the combs as best he could. He writes me that after all the mishaps they have done remarkably well, though they never swarmed.

J. FYFE,
Stirlingshire, Scotland.

Fermenting Honey

I had some 30 colonies of bees on an island this summer for the mangrove bloom and one hive stored one super of honey and when I went over them to give them room the honey smelled strong and was fermenting in the combs, so I put the cover back on the hive and left it just as it was for eight or nine weeks, waiting for the bees to seal it up, but they have not done so yet. It is still foaming almost as much as it was two months ago, but it has lost its smell. I can't account for it. I had 30 hives in the same yard and none of the rest showed any signs of it. The bees seem to be strong and come in loaded the same as the rest of the hives. I have extracted from the rest of the yard, but have left that hive to see how it will come out. I would like to know what caused it.

H. LESTER,
Palmetto, Fla.

NOTES FROM INDIANA

Uniting Queenless Bees

When bees are hopelessly queenless, as is the case when shipped in packages without queen, they are easily united with other bees, but for

safety sake proceed thus: Take a comb or two from the colony with which you intend to unite them, brush off adhering bees, and place them in an empty hive-body. If there is no honey in the combs, pour on them some sugar syrup or diluted honey, and as soon as the bees take possession of them they begin to fill themselves. When all the bees are well clustered on the combs, place them on one side of your weak colony (not in the center), and there will be no trouble whatever. The newcomers are welcomed, and as they were consciously queenless, they are now desirous for a queen. To introduce a package of bees with a queen to a queenless colony, I proceed in a similar manner, with good results.

Color of Honey

I am really surprised to read in the October number that Aster honey should be white. This shows that what applies to one locality is different in another. In this locality we had seasons where white asters were in such abundance that roadsides and fields were covered white as snow. Although there were hardly any other flowers present the honey which the bees gathered was rather dark, while in some seasons the honey from the same source was amber. The same experience I had with honey gathered from various sources in the spring. As a rule the honey extracted here in June is dark, while in some seasons it happens to be light amber. Although the seasons in which this occurred produced quite a bit of white clover, it is hard to suppose that the bees skipped all those dark honey-yielding flowers, such as tulip poplar, of which we have a great deal here, to gather their surplus honey exclusively from white clover, which yields honey of a light amber color. The surplus honey extracted during this season is all dark, in spite of the white clover, of which we had enough for some surplus honey. With this experience, I am apt to believe that weather conditions influence the color of honey in different seasons and different localities have probably still more to do with it.

For an inquirer

When comb foundation in wired frames happens to freeze, it is not injured from this source. I have had some wired frames with foundation time and again in the honey and supply house, where the thermometer has gone below zero and I found that the combs were practically as good as before. When frozen, no combs should be handled, to avoid breakage.

ALPHONSE VEITH,
Indiana.

Concrete Beehives

Quite frequently someone suggests concrete as a desirable material for making beehives. It is argued that such hives will last indefinitely and can be made at home. However, the weight alone is a sufficient objection to make them impractical for commercial beekeepers.

The hives shown in the picture are some made and used by S. L. Palmer, Hutchinson, Kans. They are made of reinforced concrete, with wood lining, surrounded by newspapers. In spite of this extra insulation the combs sometimes melt down in hot weather. Concrete is so very cold that it is objectionable on that account as well. Since wintering is the great problem to beemen over a large part of the country, a practical hive must lend itself to the easy solution of the winter question.

Honey From Bitterweed

It was about the 15th of July that a friend of mine who lives 15 miles away and has four or five hives of bees, told me that he had taken off his spring crop and would I put the supers back on. I told him that I would not, at least till velvet began to yield. There is no clover here.

I saw him about two weeks later and he asked me to fix up some supers of sections and send to him, as the bees were getting honey. I couldn't imagine what it was, for it was early for velvet beans, but I sent them to him. Last week I was out there and he said "I want to show you something," and he showed me a large bowl of very pretty honey. I exclaimed, "My, what a beautiful bowl of velvet bean honey!" He said "well, just taste it," and I can't begin to tell you the shock that I got; it was as bitter as gall.

He had gotten a super around of this bitter honey from Helenium tenuifolium. He got 32 sections to the hive.

This is commonly called "yellow top" or "bitterweed."

It grows about 10 to 15 inches high and has many little yellow ball-like flowers.

It grows on the roadside and in old fields.

I have seen a red clay road lined between the wheel ruts and the ditch with this plant. With the red road with a strip or ribbon of yellow on the edge with the brown pine needles in the woods and generally a strip of green grass in the ditches, there is a very pleasing picture.

While I have kept bees here for seven years and there is a lot of this yellow top, I have never gotten a surplus crop from it nor have I ever known the bees to get any honey from it, though they get a lot of pollen from the plant.

When cattle eat this plant the milk and butter are too bitter to eat, but they do not eat them as a rule.

My friend has too much other work to do to give the bees the attention that they should have, and I feel certain that if they had been given more attention that they would have given more than a super of sections per hive of this bitter honey. The sections were literally jam full, which showed a heavy, or at least a good flow on. Without attention you generally do not get a super of sections like these unless there is enough of a flow on for them to fill in a hurry.

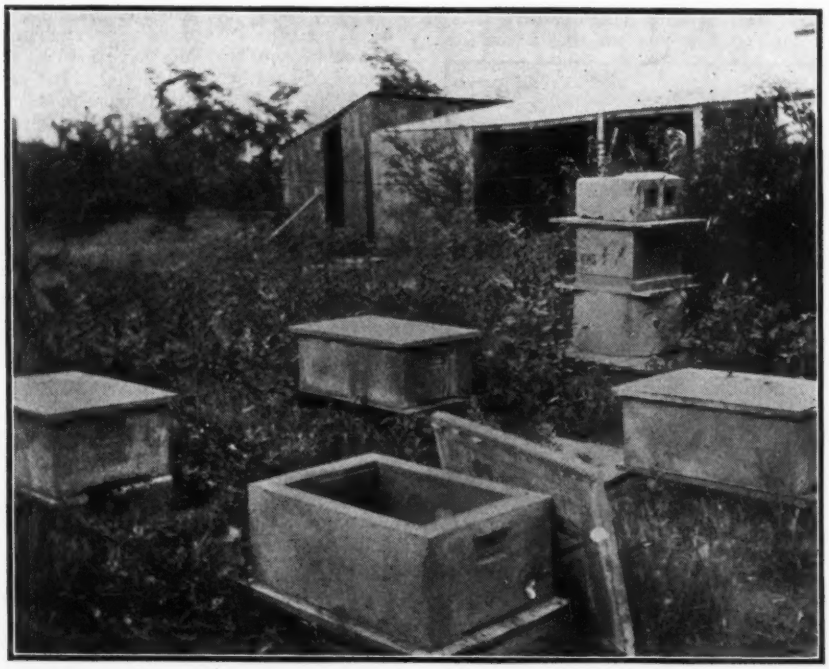
I am sending the editor a sample of this honey, and will let him give a short description of its body, flavor, etc.

JOSEPH S. SCOTT,
Mt. Pleasant, Ala.

(The honey was duly received, but the taste was so extremely bitter that one could not but lose all interest in the body and flavor. It is apparently entirely worthless for any purpose but to feed back to the bees. —Ed.)

Minnesota State Association

The Minnesota State Beekeepers' Association will meet December 4-5, in the West Hotel, Minneapolis. For details and program write L. V. France, Secretary, at the University Farm, St. Paul.



Concrete beehives

The Chicago Northwestern Beekeepers' Association
will hold their annual convention at the Great Northern Hotel, Chicago, December 10-11. A good program is being prepared and will be sent to anyone interested as soon as completed.

JOHN C. BULL, Sec.-Treas.,
Valparaiso, Ind.

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Markets

Honey arrivals since last report:

Medina, Ohio.—1,735 lbs. Florida, 29,580 lbs. Wisconsin, 40,140 lbs. Michigan, 1,223 lbs. North Carolina, 33,896 lbs. Ohio, 3.534 lbs. New York, 61,200 lbs. Wyoming, 24, 300 lbs. Mississippi, 93,850 lbs. Pennsylvania, 85,290 lbs. Colorado, 33,000 lbs. Kentucky.

Keokuk, Iowa—Reports up to September 9, 2,000 lbs. unknown origin.

Hamilton, Ill.—Reports month of August, 2,160 lbs. from Illinois.

Shipping Point Information

San Francisco, Calif., Sept. 14.—Demand and movement moderate. Shippers holding for higher prices. Cash to producer at country loading points—Extracted per pound, water white, 21-22¼c; sage white, 21-22c; light amber, 20½-21½c; dark amber, 15-18c. Beeswax, 33-35c per pound.

Los Angeles, Calif., Sept. 16—Shippers feeling practically no demand for export, on account of refusal to grant export licenses. Market firm, on account of active demand from domestic candy and ice cream manufacturers who are unable to secure enough sugar under present regulation. Prices practically unchanged. Cash to producer on farm: Extracted, per pound, white orange supplies very light, mostly 22c; light amber sage supplies practically exhausted, 20½-21½c; white alfalfa supplies exhausted; no sales reported; light alfalfa, 20-21c; amber alfalfa, 19-20c. White comb honey, $5.50-6.00 per case. Beeswax—Supplies increasing, growers holding for 40c; a few sales at 35-36c per pound.

Unofficial Shipping Point Information

Caldwell, Idaho — Crop being packed. Demand moderate; five cars sold; carloads f. o. b. cash track, extracted, in 5-gallon cans, 22½-23c per pound; in 10-pound pails, 24c per lb.

Telegraphic Reports from Important Markets

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

Note: Arrivals include receipts during preceding two weeks. Prices represent curent quotations.

St. Louis—No arrivals. Supplies light. Too few sales to establish market.

Chicago—No carlot arrivals, no cars on track. Supplies light. Demand and movement good, prices slightly lower. Sales to jobbers, extracted, per pound, Illinois and Iowa white, 24-25c; amber 22-23c. Comb honey, No. 1, 28-30c. Beeswax, 35-40c per pound, according to quality.

Portland, Ore.—25 tons arrived. Demand exceeds supply, movement good. Sales direct to retailers, extracted, per 5-gallon cans, amber 27c, light amber 30c; ton lots, light amber 27c. Comb honey, extra fancy, $7.50 per case; fancy, $7; choice, $6.50.

New York—2 cars California arrived incomplete. Receipts light. Demand moderate, movement slow, market firm. Extracted, per gallon, California, light amber $3.12-3.24, white $3.12-3.36, Porto Rican $2.30-2.50, mostly $2.40-2.50. New York, white, $2.75-3.00. Beeswax: Arrivals 300 bags South America, 260 bags Africa; receipts light. Demand and movement good, market firm. Per pound, yellow, 43½-44½c; dark, 42-43½c.

Cincinnati—Extracted, 1 car Colorado, 1 car Idaho, 4,596 lbs. from Alabama, 4,900 lbs. from Florida, 2,546 lbs. from Indiana arrived. Demand good, movement moderate on account of high prices; good out-of-town inquiry. Sales to jobbers, extracted, white orange, 26½-27c; light amber, 24½-25c. Comb honey, no supplies. Beeswax: Demand moderate. Average yellow, 36-38c pound.

Minneapolis — Minnesota receipts very light. Demand and movement good, prices considerably higher. Sales Friday, Sept. 13, to jobbers, extracted Minnesotas, 60-lb. cans, 30c per lb. Comb honey, Minnesota, 24-section cases, $6.25 per case.

St. Paul—No supplies on market; no sales.

Denver—Approximately 10,000 lbs. white extracted and 1,500 cases comb honey. Demand exceeds supply, movement brisk, little change in prices. Sales to jobbers. Comb honey, Colorado white, $6-6.50 per case. Extracted white mostly 25c per pound. Beeswax: Receipts light; cash to producer on farm, 37c per lb.

Spokane—Supplies light; movement good. Sales direct to retailers, extracted, per pound, Washington and Idaho, light amber, alfalfa, 27-28c per lb. Comb honey, No. 1, white $6.25-6.50 per case, some $6.75.

Kansas City—Comb receipts very light, no express arrivals, approximately 50 packages by freight arrived. Demand slow; movement limited; no change in prices. Sales to jobbers: Comb, native Missouri, quality and condition generally good, 24 section cases, light No. 1, $6.50-7.50. Extracted, quality and condition generally good. Light amber, 23-25c per pound. Beeswax: Receipts very light. Demand light, movement slow; no change in prices, 33-35c per pound.

Philadelphia—205 cases 191 kegs, 3 barrels from New York, 4 kegs from New Jersey, 58 barrels and kegs from Florida, Georgia and North Carolina arrived. Demand slow; no sales reported.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

Beemoth

In transferring some bees from hives without frames of foundation, I had a lot of old combs. I put them into a clean flour sack, tied it tight and hung it on wall. When I opened it today I found the sack in ridges, like corrugated paper, only larger, with coccoons and big white worms in them. Wax completely ruined. Was it moths? Were they in hive when I took combs out, or did they get in afterwards? I didn't put them away for several days. Am thinking of moving in the vicinity of Seattle, Wash., and want to take my beehives with me, minus bees. Do you think frames wou'd be safe from moths if wire cloth was tacked over top, bottom and entrance? Do you think they would mold? It is very damp during winter. M. E. B.

ANSWER.—The "big white worms" were the larvæ of the beemoth, without doubt. You say you didn't put the combs away for several days, leaving it a bit uncertain whether you tied them up right away or not. If not, then there is a chance that moths may have laid eggs in them after they were taken away from the bees. The greater chance is that eggs or young larvæ of the moth were on the combs while they were yet in the care of the bees. It is a little difficult to understand why the bees should allow this, but it is the common thing, especially with the common black bees. Italians much better at keeping off the beemoth.

Fastening up the frames, as you suggest, so that a beemoth cannot enter, will keep the combs safe, if no eggs or larvæ are already in them, and there is not very much danger of mold. If eggs or larvæ of the moth are already in the combs, and they are not in the care of the bees, the fumes of burning sulphur will destroy the larvæ. Then, perhaps two weeks later, when all eggs present have hatched out, a second fumigation will destroy the rest. Treating with carbon disulfide will destroy both eggs and larvæ.

Dadant Hives

1. You say you use no spacers in brood-chamber of Dadant hive. What do your frames rest on, the wood, or a smooth piece of metal? The hive I purchased from you has spacers, but I think I would like it better without them.

2. Why would it not be better to cut your foundation longer than 10x17½ inches, so as to more nearly fill the brood-frames and have still less drone comb?

3. If you do not use wires in the extracting frames, don't you find it difficult to make the sheets hang straight down in the center of the frame?

4. Where may the wood splints that Dr. Miller uses be obtained?

5. If the brood-frames were entirely filled with foundation, by splitting the frames and putting foundation between, would this prevent the raising of drones entirely?

6. I have only one colony of bees, in Dadant hive, and they are none too strong in numbers, being started from a 2-pound package last spring, but they have plenty of honey below, and about two-thirds of a super full, also. It seems to be all buckwheat honey. Would you advise me to try to winter them in the cellar on that, or protect the hive good and leave it outside? WISCONSIN.

ANSWERS.—1. The ends of the top-bars rest on metal rabbets. The spacers have been added to accommodate the novices.

2. If the foundation hangs too near the end-bars or bottom-bars, there is danger of curling or crumpling.

3. No; there is no trouble in such shallow frames.

4. The A. I. Root Co., Medina, O., manufacture them, and perhaps you may obtain them from other dealers in supplies.

5. No, for sometimes bees will build a few inches of drone cells over worker base. It is practically impossible to raise no drones at all, in any hive. The excess of drones is what we aim to prevent.

6. We believe the colony will winter properly on this in the cellar. You are far enough north to try it.

(The last two answers are by the editor.)

Swarms

1. How many times will a strong colony of bees swarm if fed a syrup from April 1 to May 15?

2. Would you advise me to buy a 10-frame colony and 10 queens and divide into ten 1-frame nuclei?

3. Would putting a super on cause bees not to swarm? MISSOURI.

ANSWERS.—1. Maybe four times or more, and maybe not at all. In an ordinary season, when bees are getting plenty from outside, the feeding would make no difference. If there is a time of dearth it might make a great difference.

2. Buying a 10-frame colony would not give you a sufficient amount of brood and bees to make 10 nuclei. It would be a great success if you could make half that many nuclei, introduce queens to them and build them up into strong colonies the first year. The average beekeeper would not try to make more than 3 out of one, except in extraordinary seasons.

3. Putting supers, one or more, on a strong hive of bees, does not insure against swarming, but it helps.

Dead Brood

1. I have three colonies full of bees in four full 10-frame stories each. I had planned to divide these, as I don't see how I can get all bees into one story. I winter outdoors. There have been indications of brood disease in these colonies since early in July; but as they had brood in two stories and I was raising a lot of drones (I bought these colonies last fall, all my new colonies have full sheets of foundation), I thought it might be neglected brood. The scales carried out were principally drone-brood, but some worker-cells were also affected. The larva dies mostly after sealing; the cappings are sunken and sometimes perforated. There is no ropiness; the larva dies after being capped and is being carried out and the cells kept clean. Do you think it could be sacbrood? I have requeened one of these colonies on new sheets of foundation under a queen excluder; but it did not effect a cure. I have the queen caged now, and intend to keep her so for ten days. I am going to requeen the other two. Is there anything gained by caging as late as this, when brood-rearing will soon be over?

2. Would you advise dividing those strong colonies?

3. Will bees carry honey out of the supers down into the brood-chamber in the fall? If not, what can I do to get them to take it down, as I cannot winter in two stories? WISCONSIN.

ANSWERS.—1. The thing for you to do is to send a sample of diseased brood to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C. If you write him in advance he will send you a box for you to send the sample in, with a frank for postage. He will have an analysis made, will tell you what the disease is, and will send you matter indicating treatment; all without charge. You will get no result from caging the queen after she stops laying. Moreover caging the queen is only for European foulbrood.

2. Unless you are very anxious for increase, it will be better not to divide a strong colony now. The strong colony will not be likely to have difficulty in getting into a single story when the other stories are taken away.

3. Unless the brood-chamber is already full, the bees will be likely to carry down the honey. You can help by uncapping the honey in the super, or by smashing the cells somewhat.

Dividing for Increase

1. The best way to do in comb honey, it appears to me, is to leave the queen on the old stand, best to wait therewith until there are capped queen-cells, and then to make of the brood (aside of the poorest frame thereof) at least two nuclei. until one has an abundance thereof—thus there will be lots of new queens, and in a fine season, as it has been here, many of the nuclei will grow into colonies; finally, as a last resort, brood, as you advise, can be piled up.

2. The grass around here is very tall and coarse—seems unfit to crowd into an entrance, so I take nuclei—the frames to make two are arranged in the regular upper story of the colony over an excluder—they all soon get heavy with bees;—then can be taken out and be put into hives; entrances closed up with wire netting for two days or longer; or, exactly as long as one wishes. I have made dozens and know it works well. PENNSYLVANIA.

ANSWERS.—1. Your plan will probably work right in most cases. If I understand correctly you will wait till the bees make preparation for swarming, and have cells sealed, then take away all but one frame of brood with adhering bees, and make of them two or more nuclei, leaving the old queen with one frame of brood on the old stand. Sometimes, however, the bees will not prepare to swarm, and if they do, and you wait for cells to be sealed, you may be too late, for a swarm may issue as soon as the first cell is sealed. To provide against this, as soon as cells are well advanced, or indeed before they are started at all, you can take one brood with queen and adhering bees and put on a new stand; then, when cells are sealed in the old hive, or perhaps better 5 or 6 days after they are sealed, divide the contents of the old hive into nuclei and return the old queen to the old place.

2. It may be better for you to close the entrances to your nuclei with wire cloth; but for many there are advantages in using grass or leaves instead of wire cloth. If a nucleus is in an outapiary where one would not be on hand at the right time to open the entrance, or if one is in danger of forgetting in a home apiary, the bees with the grass entrance may be safely left to themselves. If the right grass is not present, almost any leaves will do.

Wintering

On our former place we wintered with success on the south side of the schoolhouse, protecting the bees with boards on top and from all sides. But now, on the new place here at Okawville, Ill., we have a barn with a buggy-room to the south, where both doors could be opened wide. We thought to bring our good friends in this room as soon as real frost sets in. The barn remains unused. When the warm spring days come, we could open both door wings and close them at night.

Do you think this will work all right? ILLINOIS.

ANSWER.—As far south as you are, there should be no trouble, as you are about the latitude of St. Louis. But when you move the bees, if you do not take pains, some may return to the old spot. They should be made to know that they have been moved, by disturbing them and using a slanting board or other obstruction in front of the hive to compel them to take notice of the change in location. After 2 or 3 flights they will be accustomed to the new location and the obstruction may be removed.—Editor.

Comb—Italians—Concrete Hives

1. Where do bees get their comb?

2. Are Italian bees better than common American bees?. If so, why?

3. Is a 10-frame hive better than an 8-frame hive? If so, why?

4. Will nice, clean sorghum molasses kill bees?

5. Why are not concrete hives good? ARKANSAS.

ANSWERS—1. They make it from wax that is secreted by them a little in the manner milk is secreted by a cow, from the food she eats. The bees must eat honey and pollen to secrete wax. Some say as little as 3 or 4 pounds of honey to make a pound of wax; some say as much as 20 pounds.

2. Italians are almost universally considered better in this country. They protect their combs better from the bee-moth, but the great thing is that you get more money from them.

3. The large hive is generally preferred, one important reason being that there is less danger of bees starving in winter.

4. I don't know for sure; but I think it might kill them for winter stores, although it will not hurt them when flying daily.

5. They might be all right if not too heavy, or too cold.

Swarms

In the September number of the American Bee Journal I notice the question: "Does a prime swarm throw out swarms the first year?" On the 15th of May I hived two swarms. On the 15th of July both threw out swarms. I hived them and today all four swarms are strong and apparently doing well. ILLINOIS.

ANSWER.—In the September number to which you refer, I said a virgin swarm occurs "occasionally." You seem to have more of them than usual.

Beekeepers' Supplies of All Kinds

Dovetailed hives, sections, foundation, smokers, etc., sold at a reduction.

Beeswax and honey wanted, also second-hand extractors.

New price list ready, free.

W. D. SOPER

419 Liberty St. Jackson, Mich.

FOR THE MAN WHO CARES

Honey Labels, Stationery, Cards, Tags, Circulars—Everything for the Beekeeper —in the Superb Style and Quality of . .

AMERICAN BEE JOURNAL, HAMILTON, ILL.

Printing that's Different

Pollen for Winter

1. I recently secured several colonies of bees from farmers who were about to kill them to get the honey. I put them on frames of sealed honey, but now they have no pollen. What can I give them as a substitute? And when, and how?

2. In a packing case holding but a single colony, and allowing 10 inches of packing on the top, would the hole in the inner cover, intended for a bee-escape, give ventilation enough if I tack a piece of burlap over it? Or would it be better to lay the chaff cushion on top of a queen excluder?

3. Which is the better packing for the top, oat chaff, hayseed, or leaves?

4. If the top packing were less, should the hole for upward ventilation be smaller or larger? CENTRAL NEW YORK.

ANSWERS.—1. Don't worry. In those frames of sealed honey there is, mixed in the honey itself, all the pollen the bees need for wintering. When it comes time for brood-rearing in the spring they will need more, and it is just possible that in your locality they may not get enough for their early needs. At any rate, as soon as they begin flying daily, it will do no harm to offer them some substitute. Almost any ground grain will do. Rye meal is somewhat generally used, although I have never tried it. I have used with satisfaction corn and oats ground together, such as is ground for horses and cows. Put the feed in a shallow box in a sunny place. Put a stone or something under the north side of the box so as to raise it a little. As fast as the bees dig it down level, turn the full side again to the north, so they can dig it down again. If you use corn and oats, they will work out the fine part, and the rest can be fed to the stock. As soon as they can get natural pollen freely they will neglect your substitute.

2. Either one will do.

3. Dry leaves are likely a little better than the others.

4. The less the packing the less the hole, it there is opening above the packing; although there need be very little difference.

Behavior of Queens

1. Some time ago I received a queen by mail, and after introducing her to the colony of bees, I noticed that she commenced to lay in only one frame (although there would have been room in other frames) and she laid as many as six eggs in one cell. What made her do that?

2. In rearing a young queen above a colony where there is a laying queen below, how many empty brood-chambers would you advise for best results between the queen excluder and the queen that is to be reared? INDIANA.

ANSWERS.—1. I don't know I know that sometimes a queen takes a fit to do that sort of thing for a time, and then settles down to sensible work afterward, but I don't know why. Possibly the workers in their queenless condition have become demoralized and keep only the one comb in condition for the queen, but that still leaves the question why they do so.

2. In spite of a good deal of experimenting, I'm not sure just what is best. The farther from the brood-nest the more sure the bees are to start cells, although if cells already started are given in the first story above the excluder, the bees are pretty certain to continue them. There is little trouble in getting young queens hatched out, whether the cells be given in the first or the third story above the excluder; the trying time comes later, the young queens disappearing about the time you think they ought to be laying. My efforts in this direction have generally been failures, although I have had a number of cases in which I have found queens laying in upper stories when I had not so intended. I think these have generally been when the young queen was in the third story above the excluder.

Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for October, 1918:

STATE OF ILLINOIS, } ss.
COUNTY OF HANCOCK. }

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Managing Editor, Frank C. Pellett, Hamilton, Ill.

Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton. Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: None.

(Signed) M. G. DADANT.

Sworn to and subscribed before me this 8th day of October, 1918.

H. M. CUERDEN,
My commission expires August 25, 1921.

CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS

QUEENS—Bees by parcel post and we pay the postage. Will ship Italian bees this year from our own yards; they are hustlers. A few pounds of honey next year at 25 to 30c per pound will pay for your packages of bees. We shipped thousands of pounds last season. We are booking orders now, one-fourth down, balance at shipping time. We are going to winter 1,000 young tested queens reared in October, so can ship tested queens as early as you want them.

One 1-pound package bees, prepaid	$2.90
One 2-pound package bees, prepaid	5.00
One 3-pound package bees, prepaid	7.00
Select untested queens	$1.50 each
Tested queens	2.50 each
Select tested	3.00 each

10 per cent discount on orders amounting to 25 packages or more. Add price of queen wanted when ordering packages of bees. Breeders, $5 and $10. Send for Free Circular giving details. Reference: The Guaranty State Bank, Robstown, Tex., or the City Nat. Bank, Corpus Christi Tex.
Nueces County Apiaries, Calallen, Tex.

FOR SALE—9 colonies of bees in 10-frame hives, Hoffman wired frames, full sheets Dadant foundation; also a lot of empty hives, supers and other bee supplies. Write for prices and particulars.
Edwin Bevins, Leon, Iowa.

WANTED—Clover honey, comb or extracted; state price and how packed.
Odell F. Burch,
2323 S. Woodstock St., Philadalphia, Pa.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

FOR SALE—Good second-hand 60-lb. cans, 2 to the case, at 50 cents per case in lots of 50; will exchange f r honey.
E. B. Rosa, Monroe, Wis.

NO MORE QUEENS this season. Root's beekeeers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50. H. G. Dunn,
The Willows, San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed. O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.
Wilmer Clarke, Earlville, Madison Co.,N.Y.

HONEY AND BEESWAX

WANTED—White clover or amber honey in any amount. Quote lowest price f. o. b. Cleveland, the way put up and amount you have. Kindly send sample. E. W. Buckley
353 E. 123rd St., Cleveland, Ohio.

FOR SALE—About 3 000 pounds basswood and 1,500 pounds clover extracted honey in new 60-lb. cans, two cans in box, for 25 cents a pound, cash. J. P. Goodwin,
South Sioux City, Nebr.

FOR SALE—Clover, heartsease, extracted 25c per lb., 60-lb. cans.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—50,000-lb. carload extracted alfalfa-sweet clover honey, subject to best cash offer f. o. b. Delta, Colo.
Gale H. Patterson, Delta, Colo.

QUICK CASH for extracted and comb. Send sample, or describe and say price.
Bruner, 3836 No. Kostner Ave., Chicago.

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section. Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

QUICK CASH for comb or extracted. Send sample and say how packed, how much and price. Bruner, 3836 N. Kostner Ave., Chicago.

WANTED—Comb, extracted honey, and beeswax R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

WANTED

WILL PAY CASH, or give $100 typewriter, for honey extractor.
L. Clark, Winona, Minn.

WANTED—Novice separator ready for the scrap pile. C. W. Campbell,
Reevesville, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED — French correspondents. Miss Odette Giraud, 34 Rue du Docteur Fournier, Tours, Indre & Loire, France, daughter of a French apiarist and queen breeder, and 16 years of age, desires to correspond with one or more American girls of about her age, who are studying the French language. Each would write in the language of her correspondent and they would correct each other's mistakes. They would thus secure interesting information while learning the language.

TRY AN ADD in this department to sell that good equipment which you no longer need. Our want ads do the business.

CASH for extracted honey, white and amber, in 10-pound cans. Thomas Lang,
1572 N. Halsted St., Chicago, Ill.

WANTED—Bees and equipment for good 4-room house and lot in Topeka, Kans
A. V. Small, Box 218, Augusta, Kans.

WANTED—Samples of honey from the different plants for our office collection. We will pay for the honey and send a parcel post can for mailing. Samples to be of value should be from one kind of flowers only and unmixed with honey from other sources, as nearly as possible. A pint will be sufficient for each kind, but we wish to secure samples of the same kind of honey from several widely separated localities.
American Bee Journal, Hamilton, Ill.

FOR SALE

FOR SALE—40 cases of extra good second-hand 60-lb. cans, 2 cans to the case, at 65 cents per case. John Kneser,
Hales Corners, Wis.

FOR SALE—100 8-frame hive bodies, full depth; 100 8-frame shallow extracting supers, all painted white. Write for prices. All filled with drawn-combs. Address
James D. Benson, Juda, Wis.

FOR SALE—Hershiser wax press; used one season; first $20 takes it.
Ed. Swenson, Spring Valley, Minn.

FOR SALE—During 26 years of active bee-keeping and during the last ten years, have operated not less than fourteen hundred colonies, and during all that time have sold only 28 colonies. I am now going to offer about one-half of my holdings, or 800 colonies of bees for sale, in fine condition, with full equipment. This offering is an independent plant and a good money maker for one who is a business man and who understands bees. A proposition I can show without hesitancy of opening any hive to anyone. A partial payment and proper security will be acceptable, with reasonable time for the balance.
J. W. George, El Centro, Calif., Box 62.

OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.
American Bee Journal, Hamilton, Ill.

FOR SALE—40,000-lb. car of white extracted clover-alfalfa honey; state best offer, f. o. b. Hardin, Mont., in first letter. Sample if wanted. S. F. Lawrence, Hardin, Mont.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Price $80 per acre; $7,000 for farm and bees, 150 extracting supers with combs, 100 excluders, 2-frame extractors, 2 large honey tanks, 150 shallow supers. Terms, $3 000 cash, balance on time. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling. W. M. Penrod, Ronneby, Minn.

Cowan Extractor, $18; white leghorn cockerels, $1; fox terrier puppies, $2.
Lorenzo Clark, Winona, Minn.

YOU can make your own comb foundation and earn big money making it for others. New, easy, rapid process. Machine and all apparatus complete, with full instructions, $100. Wax worked on shares or for cash.
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THE SALVATION ARMY

Over there Over here

THROUGH mud and rain, through gas and shrapnel, our boys are pushing on to Victory. It's a task that tries the souls of strong men. They *must* have rest and recreation.

At the canteens, they buy the little comforts of life at cost. In the war-service huts, they find everything needful to write the letters you receive. They attend a show, see a "movie" or hear good music—all free. Always, they find in the hut secretary a friend. They forget for a little while the grim scenes of war and return to duty refreshed. These are some of the things that keep fighting men at top notch.

YOURS is the task of growing the food these fighting men must have. The toiling millions in the munition factories, arsenals and shipyards also look to you for sustenance. And they do not look in vain.

Your work is vital to winning the war and you are doing it manfully, mindful of Country, forgetful of self. You are working early and late, putting forth your strength unsparingly. You have produced bounteous crops that feed a hungry world. Yet to you are spared the comforts of home and the presence of loved ones. Yours are the privileges of earning and giving.

Give to "keep good men good and brave men strong." Give to bring cheer to those who are daring their all for you and yours. And when the boys come home victorious, you can honestly say, "I have done my part, too. I have backed you to the limit."

Seven allied activities, all endorsed by the Government, are combined in the United War Work Campaign, with the budgets distributed as follows: Y. M. C. A., $100,000,000; *Y. W. C. A.,* $15,000,000; *National Catholic War Council (including work of the Knights of Columbus and special war activities for women),* $30,000,000; *Jewish Welfare Board,* $3,500,000; *American Library Association,* $3,500,000; *War Camp Community Service,* $15,000,000; *Salvation Army,* $3,500,000.

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ADVERTISING TO VICTORY

United States Gov't Comm. on Public Information

This space contributed for the Winning of the War by

DADANT & SONS

Crop Report and Market Condition

Compiled by M. G. Dadant

For our November report we will consider the following divisions as of most importance to the beekeeper:

1. The Honey Crop.
2. Condition of Bees, Feeding, Increase.
3. Honey Flora and Rainfall.
4. Honey Prices and Demand.

THE HONEY CROP

Although first reports did not seem to indicate it, it is very likely that the crop this year will be in excess of that of 1917, although some sections show a much decreased yield.

In the New England States, in New York and, in fact, all along the Atlantic border, the crop has been in excess of that of last year, with a heavy flow and a good crop reported, especially from many parts of New York State.

The South has not had as large a crop as in 1917, though still far from a failure. Georgia seems to have fared the best of any of the Southern States. Eastern Florida was also good, but there was a near failure in Western Florida, and in Louisiana.

Alabama had a fair crop from sweet clover, while in the sweet clover sections of Mississippi the crop was excellent. Bitterweed in the fall put colonies in most parts of Alabama in good shape for winter.

Tennessee and Kentucky crops have been fair to average, with good yield in the aster sections.

Ohio had a fair early crop, with nothing in the fall, while Indiana and Illinois have had very little surplus this season, the fall crop being fair in most parts so as to put colonies in good shape without feeding. In purely white clover locations heavy feeding is being done to get bees in shape for winter.

The Michigan crop is fair but not up to last year, while one well-known reporter states that the season has been a failure in Wisconsin with heavy feeding necessary. This reporter has just finished feeding 5,000 pounds of sugar to his bees.

In Minnesota, Eastern Iowa and Missouri the crop is a near failure, with much feeding being done. The sweet clover belt of Western Iowa, Kansas and Nebraska has a crop much in excess of a year ago.

Many Texas reporters claim practically a total failure again this year, but a majority of reports indicate that there has been much more honey produced there than in 1917, and bees are going into winter in much better shape, though no little feeding has to be done.

In the Rocky Mountain States the crop is about average, which means that they have had a fair crop. Washington reports a much smaller crop than in 1917, and it is likely that the same will apply to New Mexico, and most of California.

CONDITIONS OF BEES

Generally, bees are going into winter in very fair shape, even though considerable feeding is being done. The big price of honey and the consequent desire of all to produce as much as possible in 1919 has made more feeding than usual, undoubtedly to the betterment of the crop next year.

Much increase has been made this year, in fact it is not improbable that most of the losses have been made up in the country for the bad season a year ago, and in many instances where the crop has been good as high as 200 per cent increase has been made.

One lack here seems to be that colonies are not going into winter with as large a supply of bees as might be hoped for, probably, however, owing to the drought of summer, which was not followed till late by the fall flow, with the result that colonies still have much brood and are still breeding up.

FLORA AND RAINFALL

It is too early to make any guess as to the condition of plants as affecting the 1919 flow. The prolonged drought of summer in the white clover regions has, to a large extent, however, cut the flora for next year. Late rains are having the effect of bringing some of the plants back to life, but we believe from present indications that the clover crop will not be large generally next season, though some locations favored by early rains may be extremely good.

In our own yards we count on little surplus next spring and are making plans for a cleanup year, and some increase, getting ready for a possibly good crop in 1920.

HONEY DEMAND AND PRICES

The demand for honey is still at its best.

In the export trade, some sales have been cut off by the fact that all sales for England are being made through the British government, with the result that some connections and guaranteed prices have been canceled.

We have heard of one instance of the withdrawal of a guaranteed price of 25 cents by a British firm owing to the ruling.

It is questionable whether this, combined with the difficulty in getting space in steamships for other allied countries is having a serious drawback on our exports of honey, since the allied governments are still demanding honey.

There is no doubt but that the demand for honey had increased on the part of the manufacturer of food products in which sweets are used, such as cakes, candies, etc. The ruling cutting down the amount such firms can have of sugar to 50 per cent of former requirements, forces the use of honey and other sweets, even at much higher prices.

Demand for direct consumption is also on the increase, and for the same reason as above, both because of inability to get as much sugar as before war restrictions were enforced, and for patriotic reasons.

There is no doubt but that most of the 1918 crop of honey can be disposed of by Christmas if the producer is willing to take a price within bounds. There are already producers who are holding for 30 cents per pound in large quantities.

Honey is generally leaving the hands of producers at prices ranging from 22 to 26 cents in car lots, while comb honey is commanding in the neighborhood of $6 to $7 per case.

One large producer is selling out in smaller quantities at about the following prices:

10-pound cans, $3.25.
5-pound cans, $1.75.
One 60-pound can, $18.
Larger quantities, 27 cents to 28 cents per pound.

These prices are certainly remunerative enough, and we doubt if the bulk of producers will ask for more, even though they may be able to get it.

Of course, when it comes to replacement of stock by buying elsewhere, the producer will have to vary his price according to what he will have to pay.

KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

Send all orders to

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are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 9000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dirs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

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Our Advertising Counsel and Sales Promotion Service will improve your plan and copy, insuring maximum profits. Submit your plans or literature for preliminary analysis and quotation, no obligation.

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FOR EXTRACTED HONEY

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

Send for prices. Samples, postpaid, 15c in stamps.

M. H. HUNT & SON, Agents

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Don't stop advertising.

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

EAT HONEY

NATURE'S OWN SWEET - AIDS DIGESTION

Price of 1,000 gummed, 35c.

American Bee Journal, Hamilton, Illinois

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We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey-Producers' Association

1424 Market Street, Denver, Colo.

Prepare for a Big 1919 Crop of Honey

By ordering your supplies promptly, also make a saving on purchase prices, as we are offering attractive discounts for early orders. Remember, we carry the most complete line of Lewis Bee Supplies and Dadant's Foundation, also Honey Extractors in the East, and our location on the Main Trunk Lines gives us the best shipping facilities.

Send us a list of your requirements, and we will quote you a price that will please you. We would also be pleased to quote you on Glass Jars and Friction Top Pails.

THE DEROY TAYLOR CO.

Newark : Wayne County : New York

Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

	Nov. 1 to May 1			May 1 to June 1			June 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$1.50	$ 7.50	$13.50	$1.25	$ 6.50	$11.50	$1.00	$ 5.00	$ 9.00
Select Untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00
Tested	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00
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No Nuclei or Bees by Pound.

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

BEN G. DAVIS : : Spring Hill, Tenn.

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The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

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WE WILL BUY ALL THE GOOD HONEY YOU HAVE TO OFFER AND PAY TOP PRICES.

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BEE SUPPLIES
Quality ... Service

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LEUTZINGER & LANE

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Extracted and Comb Honey

Cor. Drumm and Oregon Sts. SAN FRANCISCO, CALIFORNIA

Western Beekeepers Attention

We pay spot cash for Honey, and do not handle on commission. Write us what you have, or expect to have, to sell. We buy any quantity.

Write for Price List and Booklet descriptive of

HIGH GRADE
Italian Queens
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is worth more to family life today than ever before. Today, those who are responsible for the welfare of the family realize the imperative need of worthwhile reading and what it means to individual character, the home life and the state. Everywhere the waste and chaff, the worthless and inferior, are going to the discard.

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It costs only $2 a year to provide your family with the very best reading matter published. In both quantity and quality as well as in variety The Youth's Companion excels.

Don't miss Grace Richmond's great serial, Anne Exeter, 10 chapters, beginning December 12.

The following special offer is made to *new* subscribers:

1. The Youth's Companion—52 issues of 1919.
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3. The Companion Home Calendar for 1919.

All the above for only $2, or you may include

4. McCall's Magazine—12 fashion numbers.

All for only $2.50. The two magazines may be sent to separate addresses if desired.

THE YOUTH'S COMPANION,
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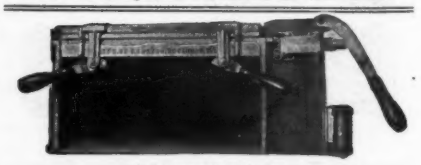

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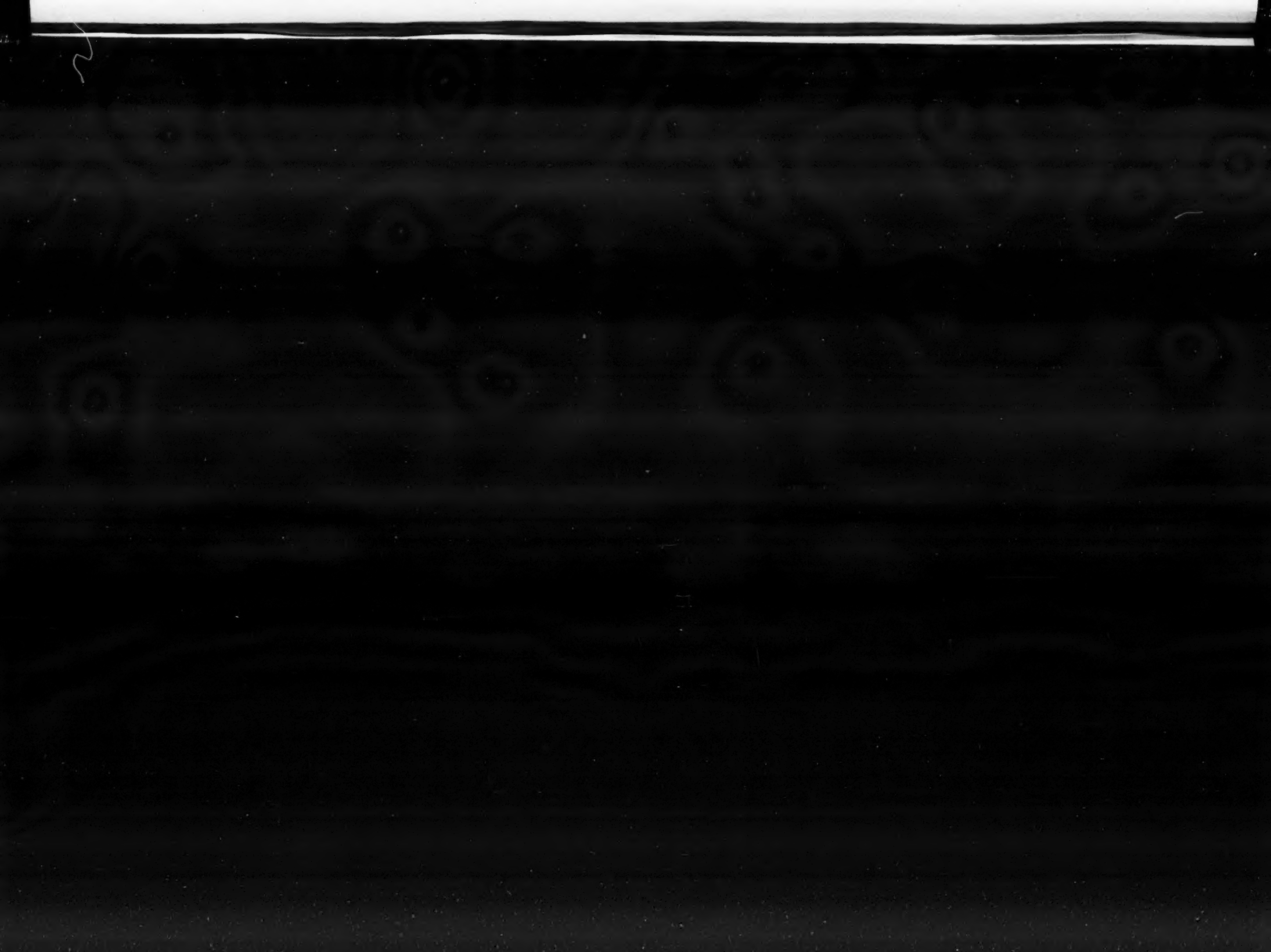

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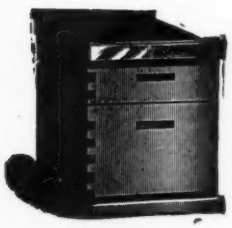

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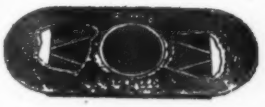

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If no dealer, write factory
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Our shipping cases are all accurately made of nice basswood lumber. This makes a very attractive, neat and strong package.

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We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

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Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

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Let Us Figure With You

We know we can satisfy you on price and $8.00; select tested, $1.25.

C. C. Clemons Bee Supply Co.
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BARNES' Foot-Power Machinery

Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

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Write today for prices and any other particulars.

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The PROOF? — Two Letters FROM BEEMEN:

"Our correspondent makes serious complaints against————and MAKES A PLEA FOR CYPRESS as a BEEHIVE MATERIAL. We hope you will look into this matter," (Etc.)—and here's another:

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Is there value to you in an endurance test of 48 years in greenhouse sash? It is reported to us that sash made of heart Cypress by a prominent greenhouse contractor in Chicago, and placed in position in a greenhouse at Des Plaines, Ill., in 1868, are **Still Doing Service.**

It Will Serve You as Well and save you the nuisance and expense of repairs and replacements.

The argument backed by such facts cannot be answered by mere talk. Ask the manufacturer or contractor who wants to give you a "substitute" for Cypress to cite to you an endurance test of 30 or 45 years to the credit of the so-called "substitute."

That is no more than a fair precaution on your part—good, ordinary business sense.

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